Theses and Dissertations   1. Thesis and Dissertation Collection, all items

1999-09

Investigation of flow over second generation controlled-diffusion blades in a linear cascade

Nicholls, Jennifer L.

Monterey, California: Naval Postgraduate School

http://hdl.handle.net/10945/13711

NAVAL POSTGRADUATE SCHOOL

Monterey, California

THESIS

INVESTIGATION OF FLOW OVER SECOND GENERATION CONTROLLED-DIFFUSION BLADES IN A LINEAR CASCADE
by
Jennifer L. Nicholls
September 1999
Thesis Advisor: Garth V. Hobson

Approved for public release; distribution is unlimited.

19991126 077

REPORT DOCUMENTATION PAGE		Form Approved OMB No. 0704-0188
1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE September 1999	3. REPORT TYPE AND DATES COVERED Master's Thesis
4. TITLE AND SUBTITLE INVESTIGATION OF FLOW OVER SECOND GENERATION CONTROLLED-DIFFUSION BLADES IN A LINEAR CASCADE		5. FUNDING NUMBERS
6. AUTHOR(S) Nicholls, Jennifer L.		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000		8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSORING/MONITORING AGENCY REPORT NUMBER
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.		
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.		12b. DISTRIBUTION CODE

13. ABSTRACT

   This thesis contains a detailed investigation of second-generation controlled-diffusion compressor stator blades. The objective of the study was to compare the flow over and around the blades after the replacement of the tunnel motor, to that of previous studies. The inlet-flow angle was found to have increased from 39.5° to 40° with no movement of the blades in the tunnel. The blades were investigated at the new off-design inlet-flow angle using multiple experimental techniques. Surface flow visualization was used to view the overall blade surface flow characteristics. Blade surface pressure measurements were taken from an instrumented blade, and the distributions of pressure coefficients were calculated. A pressure rake probe was used to confirm the inlet endwall boundary layer thicknesses. Five-hole probe wake surveys were performed to determine loss coefficients and axial velocity ratios. Two-component laser Doppler velocimetry (LDV) was used to characterize the flow in the inlet, in the wake and the suction-side boundary layers of the blades.

   Good correlation between techniques was found. The increased angle of incidence on the blades resulted in increased loading, and at the low Reynolds number, a smaller laminar separation bubble was observed.

14. SUBJECT TERMS laser Doppler velocimetry, controlled-diffusion compressor blading		15. NUMBER OF PAGES 113
		16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT Unclassified	1. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UL

INVESTIGATION OF FLOW OVER SECOND GENERATION CONTROLLED-DIFFUSION BLADES IN A LINEAR CASCADE

Jennifer L. Nicholls
Lieutenant, United States Navy
B.S., United States Naval Academy, 1991
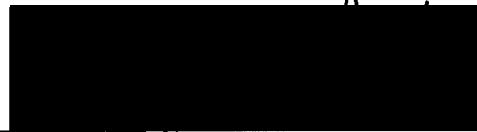
Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN AERONAUTICAL ENGINEERING

From the
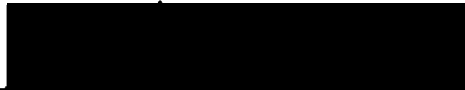
NAVAL POSTGRADUATE SCHOOL
September 1999

Author: _____
Jennifer L. Nicholls

Approved by: _____
Garth V. Hobson, Thesis Advisor

_____
Raymond P. Shreeve, Second Reader

_____
Gerald H. Lindsey, Chairman
Department of Aeronautics and Astronautics

ABSTRACT

This thesis contains a detailed investigation of second-generation controlled-diffusion compressor stator blades. The objective of the study was to compare the flow over and around the blades after the replacement of the tunnel motor, to that of previous studies. The inlet-flow angle was found to have increased from 39.5° to 40° with no movement of the blades in the tunnel. The blades were investigated at the new off-design inlet-flow angle using multiple experimental techniques. Surface flow visualization was used to view the overall blade surface flow characteristics. Blade surface pressure measurements were taken from an instrumented blade, and the distributions of pressure coefficients were calculated. A pressure rake probe was used to confirm the inlet endwall boundary layer thicknesses. Five-hole probe wake surveys were performed to determine loss coefficients and axial velocity ratios. Two-component laser Doppler velocimetry (LDV) was used to characterize the flow in the inlet, in the wake and the suction-side boundary layers of the blades.

Good correlation between techniques was found. The increased angle of incidence on the blades resulted in increased loading, and at the low Reynolds number, a smaller laminar separation bubble was observed.

TABLE OF CONTENTS

LIST OF FIGURES

I. INTRODUCTION

A. BACKGROUND

Ever increasing demands for aircraft performance, require an increase in the capabilities of gas turbine engines. The problems of compressor stall and off-design behavior have long been the limiting factors in the performance of these engines. The need for smaller more powerful engines to meet the demands of today's aircraft missions, has led to increased requirements for blade loading, improved performance at the design point and the ability to operate at off-design conditions without compressor stall. This has led to the development of Controlled-Diffusion (CD) blading.

Made possible by the development of Computational Fluid Dynamics (CFD) techniques, the use of arbitrary blade shapes for the blade surfaces had led to attempts to control boundary layer diffusion on the suction surface of the blade. Controlled-Diffusion (CD) blading allows blades to be specifically designed to produce the desired pressure distribution,whilst avoiding boundary layer separation on the suction side of the blade. This allows higher blade loading, thus providing for more turning for each blade row and therefore to fewer blades to obtain the desired pressure ratio within a compressor, or to a higher pressure ratio with the same number of blades. Thus for a given engine thrust, a reduced weight can be expected. Since CFD is an integral part of the blade design process, validation data must be gathered in order to continue the development of more efficient, higher performance blading.

The present study was an investigation of flow through CD compressor blades in the Naval Postgraduate School (NPS) low-speed cascade wind tunnel (LSCWT). The blades and cascade geometry modelled the midspan Stator 67B section, designed by Thomas F. Gelder of NASA Lewis Research Center [Ref. 1]. The current airfoils are second generation blades developed as an improvement over Stator 67A, a first generation CD blade row designed by Nelson Sanger [Ref. 2]. The midspan section of stator 67A was previously investigated in the low-speed cascade. The current blades, together with Rotor 67 comprise Compressor Stage 67B which was experimentally tested

1

by Gelder et. al. [Ref. 1]. Hansen [Ref. 3] examined the flow through the midspan section at a near-design inlet-flow angle of 36.3° using Laser-Doppler Velocimetry (LDV) and pressure probe measurements. Schnorenberg [Ref. 4] studied the off-design flow characteristics at an angle of 38°. LDV measurements, flow visualization and blade surface pressure measurements were used to investigate the effect of Reynold's number on a separation region detected near midchord. Grove [Ref. 5] characterized the flow patterns at an inlet flow angle of 39.5°. Flow visualization, rake probe surveys, blade surface pressure measurements and LDV measurements were used to document the flow upstream, in the passages between the blades, in the boundary layer of the blades, and in the wake region.

B. PURPOSE

The objective of the current study was the characterization of the flow at an off-design angle of 40°. The motor that powered the LSCWT was replaced before the study began and possible effects on the flow in the test cascade needed to be established. Flow visualization, rake probe measurements, blade surface measurements, five-hole probe measurements and two-component LDV measurements were used to characterize the flow upstream of the blades, in the suction surface boundary layer and in the wake region of the blades over several Reynolds numbers. When consistent results were found, a continued investigation of the mid-chord separation region documented by Schnorenberg [Ref. 4], and Grove [Ref. 5] was conducted. Three-component LDV measurements were initiated to investigate three-dimensional flow behavior in the cascade.

II. TEST FACILITY AND INSTRUMENTATION

A. LOW-SPEED CASCADE WIND TUNNEL

The present study was conducted in the Low-Speed Cascade Wind Tunnel located at the Naval Postgraduate School's Turbopropulsion Laboratory. A schematic of the cascade in the Low Speed Turbomachinery Building is shown in Figure 1. Prior to the current study the 750 hp motor and blower in the tunnel was replaced by a 550 hp electric motor and blower, which required a new diffuser. All other aspects of the tunnel remained as previously documented.
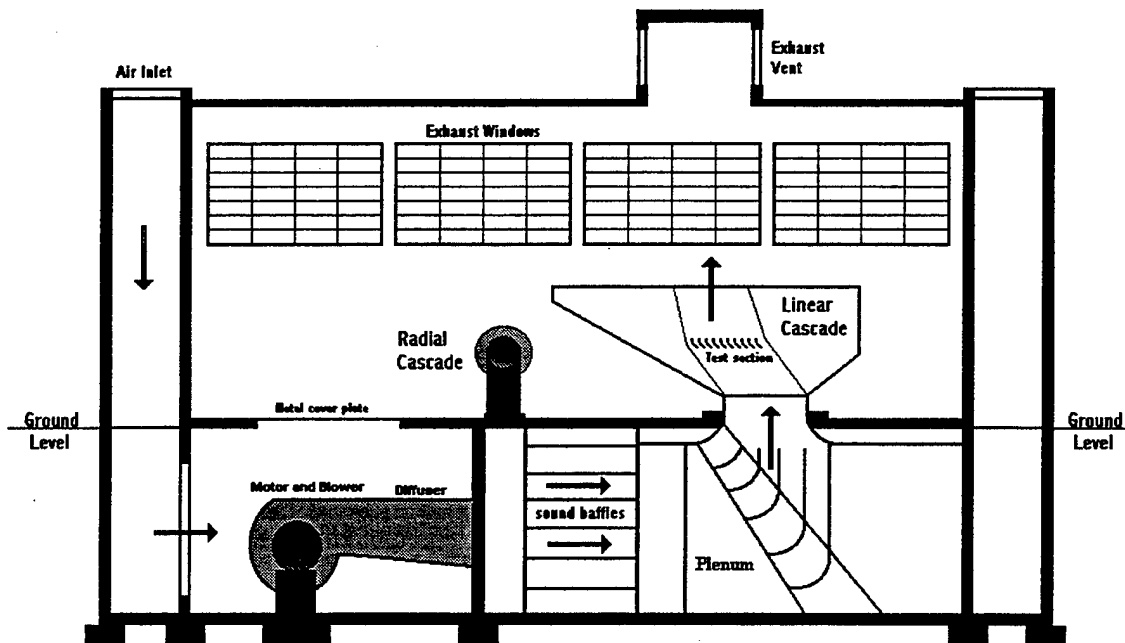
Figure 1. NPS Low-Speed Cascade Wind Tunnel

B. TEST SECTION

The test section of the LSCWT contained 10 Stator 67B controlled-diffusion blades. The installation of the blades in the test section was detailed by Hansen [Ref. 3]. A detailed layout of the test section is shown in Figure 2. Prior to the current study, the

blades were tested at the near-design inlet angle of 36.3° by Hansen [Ref. 3], at 38° by Schorenburg [Ref. 4] and at 39.5° by Grove [Ref. 5]. The test section configuration was identical to that reported by Grove. All changes in flow characteristics were attributed to changes caused by the installation of the new motor and diffuser.
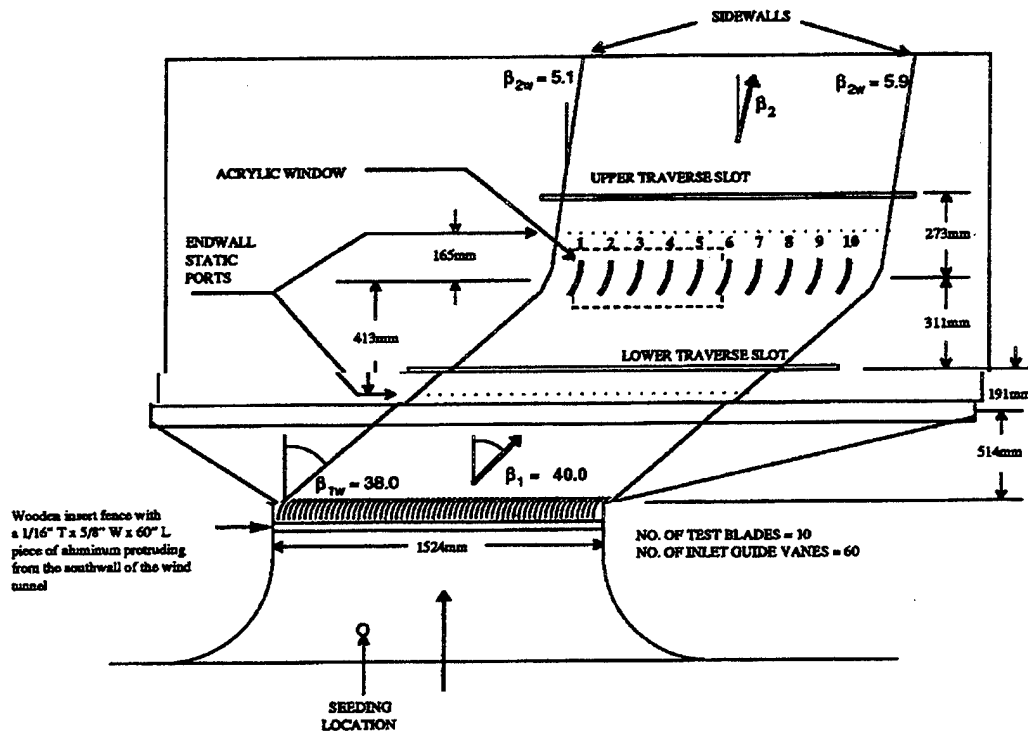
Figure 2. Test Section Schematic

The blades were scaled from the midspan section of Stator 67B [Ref. 1]. The coordinates used to machine the blades were documented in Reference 3. Each blade was 254 mm in span, 127.25 mm in chord, and set with a blade spacing of 152.4 mm. The blade profile is shown in Figure 3.
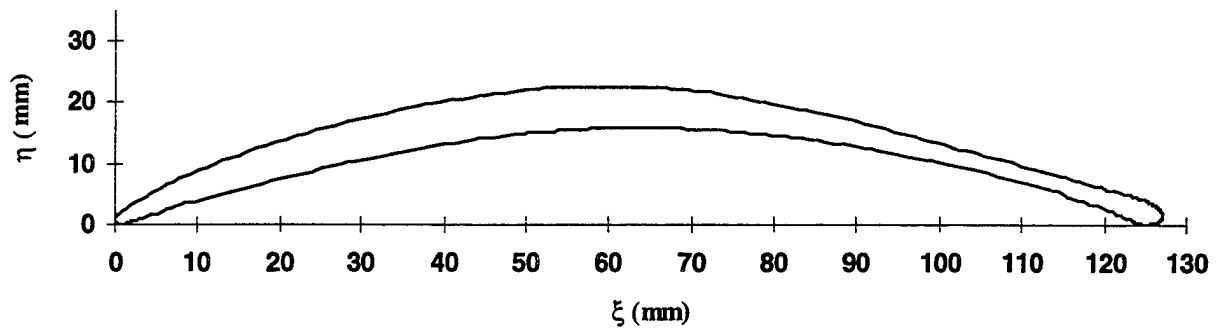
Figure 3. Blade Profile

Blades 2 and 8 were partially instrumented with eight pressure taps, and blade 6 was a fully instrumented blade containing 42 pressure taps.

LDV measurements were conducted between blades 3 and 4, since these blades were anodized black to minimize backscatter.

C. INSTRUMENTATION SETUP

1. Flow Visualization

Surface flow visualization was carried out using a titanium dioxide (TiO_2) and kerosene mixture to observe surface streamlines. The steps for mixing the solution were documented by Grove [Ref. 5]. The resulting flow patterns were recorded using a video camera, black-and-white still photographs, as well as color digital pictures, were taken.

2. Pressure Surveys

Pressure surveys were carried out to characterize the inlet flow, and the flow in the wake of the blades, and to measure the blade surface pressure distributions.

a. Pressure Measurements

Inlet flow surveys were carried out using a 20-hole rake probe. The probe had 17 total pressure ports, 1 static pressure port, and 2 yaw ports arranged along the span. The rake probe was documented by Webber [Ref. 7]. The surveys were made in the blade-to-blade direction.

5

Surface pressure measurements were taken from the fully instrumented blade located at position number 6, to determine the pressure distribution over the surface of the blade.

The wake pressure surveys were carried out using a five-hole pressure probe traversing 229 mm (9 in) from the trailing edge of the blades. The probe measurements were used to determine the loss coefficient (ω) and the axial velocity ratio (AVR) and non-dimensional velocity profiles in the wakes of the blades.

All pressures from the rake probe, instrumented blades and five-hole probe were recorded using two 48 channel Scanivalve rotary pressure scanners. Scanivalve ports and channel assignments are given in Appendix A.

b.   Data Acquisition

All pressure data were acquired using the HP75000 Series B VXI-Bus Mainframe controlled by HPVEE Software running on a personal computer. The acquisition system was documented by Grossman [Ref. 8]. The HP-VEE program used to control the Scanivalve rotary pressure scanners is documented in Reference 9.

3.   LDV Measurements

LDV measurements were obtained using a TSI three-component fiber-optic system. The system included a five-Watt Lexel Model 95 argon-ion laser, directed into a TSI Model 9201 Colorburst, transmitted by fiber-optic cables to two 83 mm probes. The reflected signals were collected by the probes and fed back to a TSI Model 9230 Colorlink, via a return fiber optic cable. The laser and optics system, data acquisition system, laser flow seeding systems, and traverse mechanism, were described by Dober [Ref. 6]. All LDV data were acquired and reduced using TSI Find software, version 4.03.

III. EXPERIMENTAL PROCEDURE

A. REYNOLDS NUMBER VARIATION

In order to fully determine the changes in flow characteristics with the change in the tunnel power supply, and to fully compare data to those previously acquired, data were collected at three Reynolds numbers. The tunnel was run at a plenum gage pressure of 305mm (12 inches) of H_2O, corresponding to a Reynolds number of 640,000 and a freestream Mach number of 0.22. Measurements were also obtained at a plenum gage pressure of 38 mm (1.5 inches) of H_2O, corresponding to a Reynolds number of 210,000 and a freestream Mach number of 0.07. For some measurements, an intermediate Reynolds number of 380,000 was investigated, using a tunnel plenum gage pressure of 102 mm (4.0 inches) of H_2O. This setting produced a Mach number of 0.13.

B. SURFACE FLOW VISUALIZATION

The surface flow was visualized using the titanium dioxide (TiO_2) and kerosene mixture described in reference 5. The window was removed from the tunnel and blades 3 and 4 were coated with the TiO_2 mixture. The window was then replaced and the tunnel was set to the desired plenum gage pressure. The evolution of the streamlines was recorded using a tripod-mounted VHS camera. Still photographs were taken after equilibrium conditions were reached during each run. Flow visualization was obtained at test section Reynolds number of 210,000 and 640,000.

C. PRESSURE MEASUREMENTS

1. Rake Probe Pressure Measurements

The rake probe was inserted into the lower traverse slot (Fig. 2) located 229 mm (9 inches) vertically (axially) upstream of the leading edge of the blades. The probe spanned the test section measuring 17 total pressures, one static pressure, as well as the midspan yaw angle of the flow. These values were recorded, along with the plenum temperature, plenum gage pressure and atmospheric pressure, for each run. The rake

7

probe was traversed across several full blade passages taking measurements every 25.4mm. Pressures were measured using a 48 channel Scanivalve rotating pressure sensor and recorded with the plenum temperature using the HP-VEE program "Test_Scanners_Pressures", given in Reference 9.

2. Five-Hole Probe Pressure Measurements

The five-hole probe was in a traverse mechanism mounted in the upper traverse slot of the tunnel (Fig. 2). The probe was centered at midspan of the blades and aligned with the leading edge of blade 3. The probe was traversed across one complete blade space. The probe was null yawed at each position, using a U-tube water manometer, before recording the pressure measurements. Pressures were measured using Scanivalve #2, and along with the plenum temperature and yaw angle, were recorded using an HP-VEE program called "Test_Scanners_Fivehole" given in Reference 9.

3. Blade Surface Pressure Measurements

The tunnel was brought up to speed and allowed to stabilize prior to data collection. Blade surface pressures were taken from the instrumented blade number 6 using Scanivalve #1, and recorded with the plenum temperature using HP-VEE software program called "Test_Scanners_Pressures3", given in Reference 9.

D.   LDV MEASUREMENTS

1. Tunnel Calibration

The wind tunnel was run at five different plenum pressures for calibration purposes. The tunnel was run at plenum pressures of 51, 114, 178, 272, 300, and 351 mm of H_2O. Plenum pressure, plenum temperature and, atmospheric pressure were recorded, while vertical and horizontal velocity components were measured with the LDV at station 1 (Fig. 4). The data were then entered into a FORTRAN program, CALIB1.FOR [Ref. 3] to determine the tunnel calibration.

2. Probe Volume Alignment

The LDV probe volume was aligned using the alignment tool and the coordinates of the blades documented in reference 3. All LDV surveys were performed at midspan of the blades except where noted, and all survey positions were measured from the leading edge of blade 3.

3. LDV Surveys

Thirty-six surveys were completed at the inlet flow angle of 40 degrees. These surveys were a combination of inlet, wake and boundary layer surveys completed at tunnel settings corresponding to Reynolds numbers of 210,000, 380,000, and 640,000. All histograms used 1000 data points. Eleven stations were used for LDV surveys and are shown in Figure 4. Stations 1-3 were used for inlet surveys, stations 5-9 were used for boundary layer surveys, and stations 11-13 were used for wake surveys. Additional surveys were taken in the suction-side boundary layer between stations 7 and 8. All boundary layer surveys were taken perpendicular to the blade surface at the survey position.

Survey Station Numbering and Location in Terms of Axial Chord
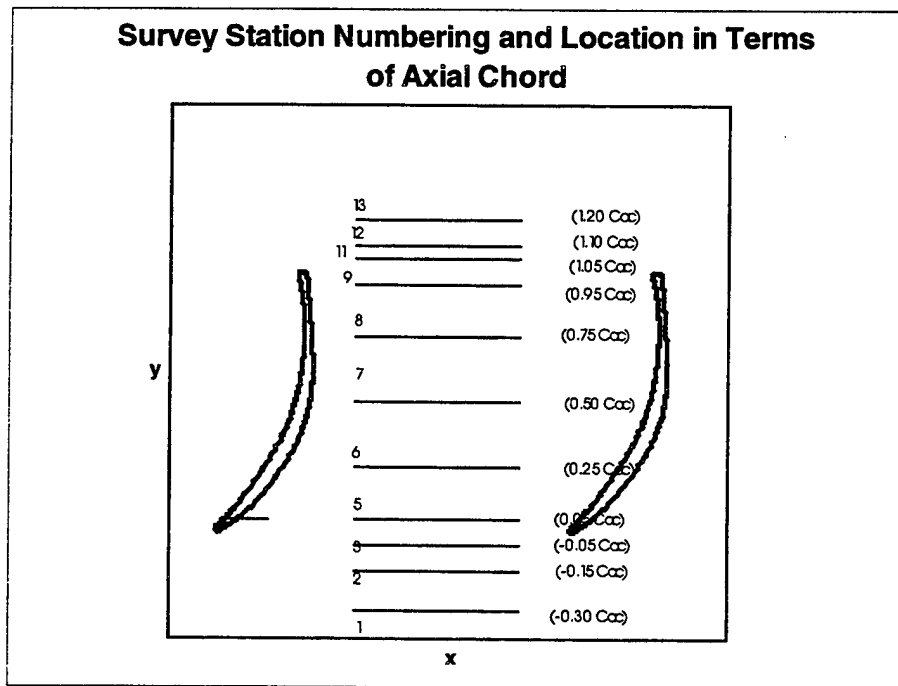
Figure 4. LDV Survey Locations

Ambient pressure, plenum pressure and plenum temperature were recorded for each run. A reference velocity was calculated for each survey by inserting this data into the FORTRAN program CALIB1.FOR [Ref. 3].

Data collected by the laser included axial and tangential velocities, turbulence intensities, Reynolds stresses and the Reynolds stress correlation coefficient. All data were processed using FIND software, and each run was non-dimensionalized using the reference velocity calculated for that run. This allowed surveys conducted under different atmospheric conditions to be compared.

a.   Inlet Surveys

Inlet flow surveys were conducted at stations 1, 2, and 3 between blades 3 and 4 of the test section, for all three Reynolds numbers. 1 Mhz of frequency shifting was utilized for data acquisition, and the LDV probe was positioned horizontally with no yaw for all inlet surveys.

b.   Boundary Layer Surveys

Boundary layer surveys were conducted at stations 5-9 for the high and low Reynolds numbers, on the suction side of blade 3. Surveys were also performed at stations 7.25, 7.5 and 7.75 for the low Reynolds number. All boundary layer surveys were conducted with the LDV axis yawed 5 degrees to the left to avoid masking as the probe volume approached the blade surface. High Reynolds number surveys utilized 1 Mhz of frequency shifting and low Reynolds number surveys required 10 Mhz of frequency shifting.

c.   Wake Surveys

Wake surveys were conducted at stations 11-13 for all three Reynolds numbers. Five Mhz and 10 Mhz of frequency shifting was utilized for data collection, and the LDV probe was positioned horizontally with no yaw for all wake surveys.

IV. RESULTS AND DISCUSSION

A. SURFACE PRESSURE MEASUREMENTS

Surface pressure measurements were taken on blade 6 at each of the three Reynolds numbers. The blade surface pressure measurements were non-dimensionalized using inlet total and static pressures. The surface pressure distributions are shown in terms of the coefficient of pressure C_p plotted against a fraction of the blade chord.

The surface pressure distribution for the high Reynolds number (640,000) is shown in Figure 5. The pressure was at a minimum value at .4 C_{ac} and then rose continuously to the trailing edge. This indicated attached flow along the blade with no indication of midchord separation. There was 3-dimensional separation from about 80% chord to the trailing edge. This was due to the endwall vortices that coalesced on this portion of the blade.
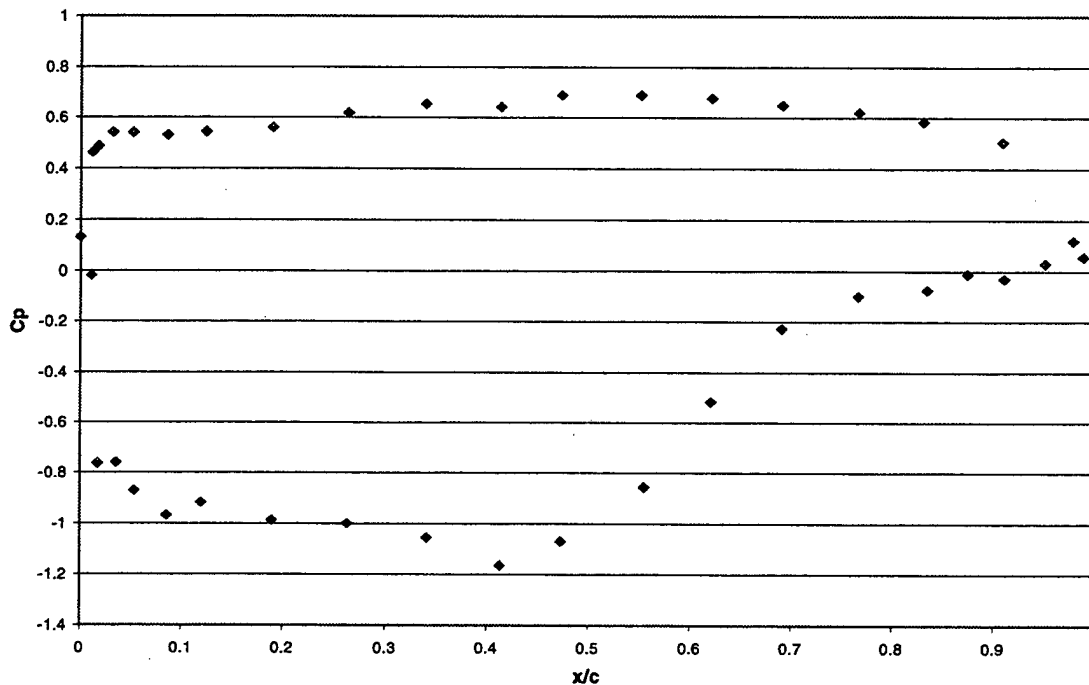
Figure 5. Cp Distribution at Re = 640,000

The surface pressure distribution for the intermediate Reynolds number (380,000) is shown in Figure 6. This distribution was similar to that of the high Reynolds number and also indicated a lack of midchord separation which occured at this speed at lower angles of incidence [Ref. 4]. The trailing edge separation region was similar to that of the high Reynolds number; although because it was not as developed, the upstream effects of that region were less at the lower speed. Therefore, the minimum pressure point was further back on the blade, at about 50 percent chord.
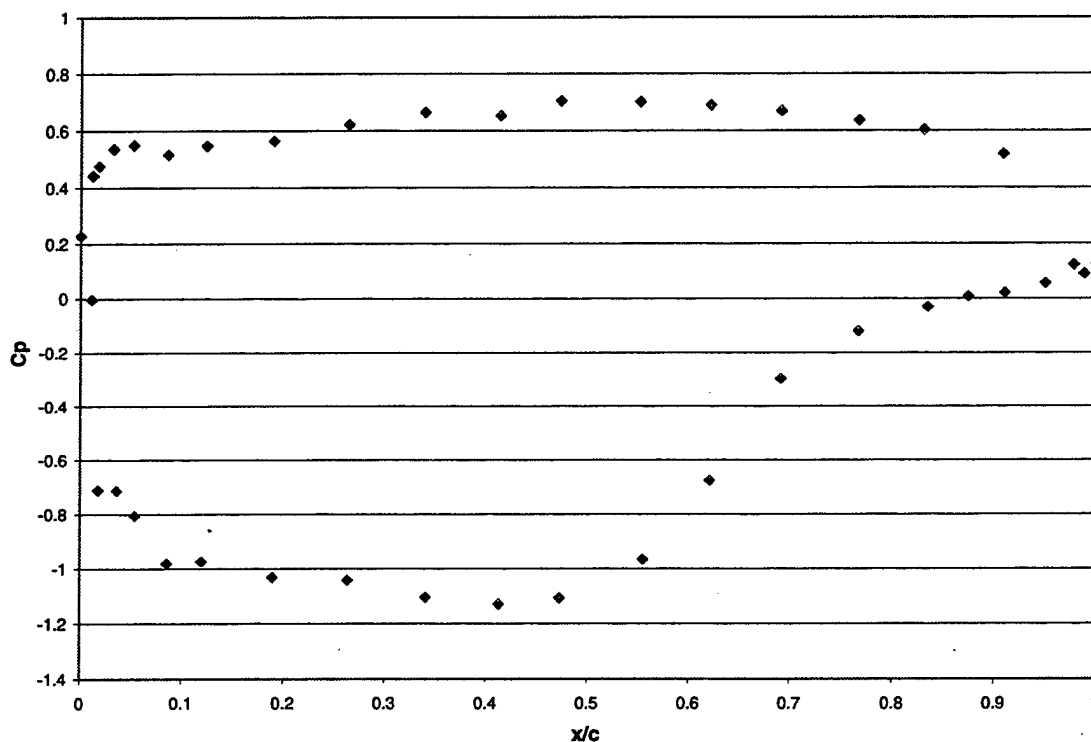
Figure 6. Cp Distribution at Re = 380,000

The C_p distribution for the low Reynolds number (210,000) is shown in Figure 7. The distribution showed a separation bubble between 45% and 65% of the chord. Separation was indicated by the plateau in the distribution near midchord. The bubble also lowered the magnitude of the minimum suction peak. The flow reattached turbulent as can be seen by the strong pressure gradient between 64% and 69% chord. This separation bubble was smaller than was measured by Schnorenburg [Ref. 4], probably due to the increase in incidence angle.

12
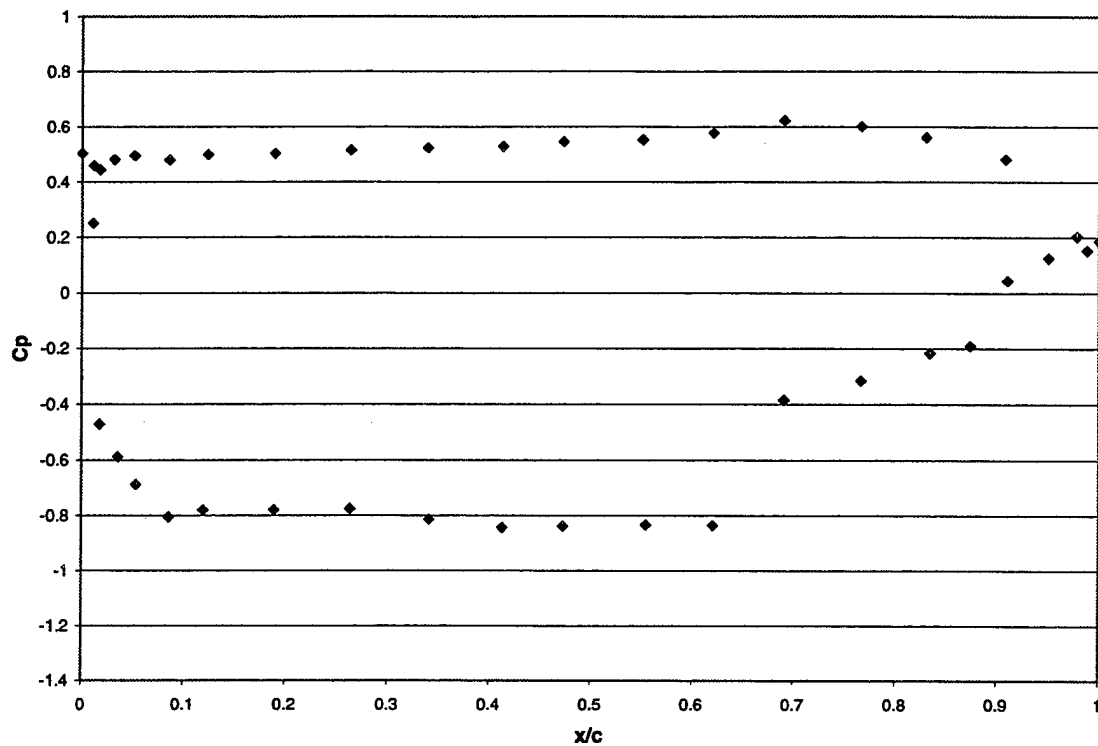
Figure 7. Cp Distribution at Re = 210,000

The distributions are overplotted in Figure 8. The effect of the separation bubble at the low Reynolds number is clearly visible. The increasing effect of the trailing edge separation as the Reynolds increased is also visible. When compared with previous results [Ref. 4.], the effect of the increased incidence can be seen with the increased loading on the leading edge of the blades.
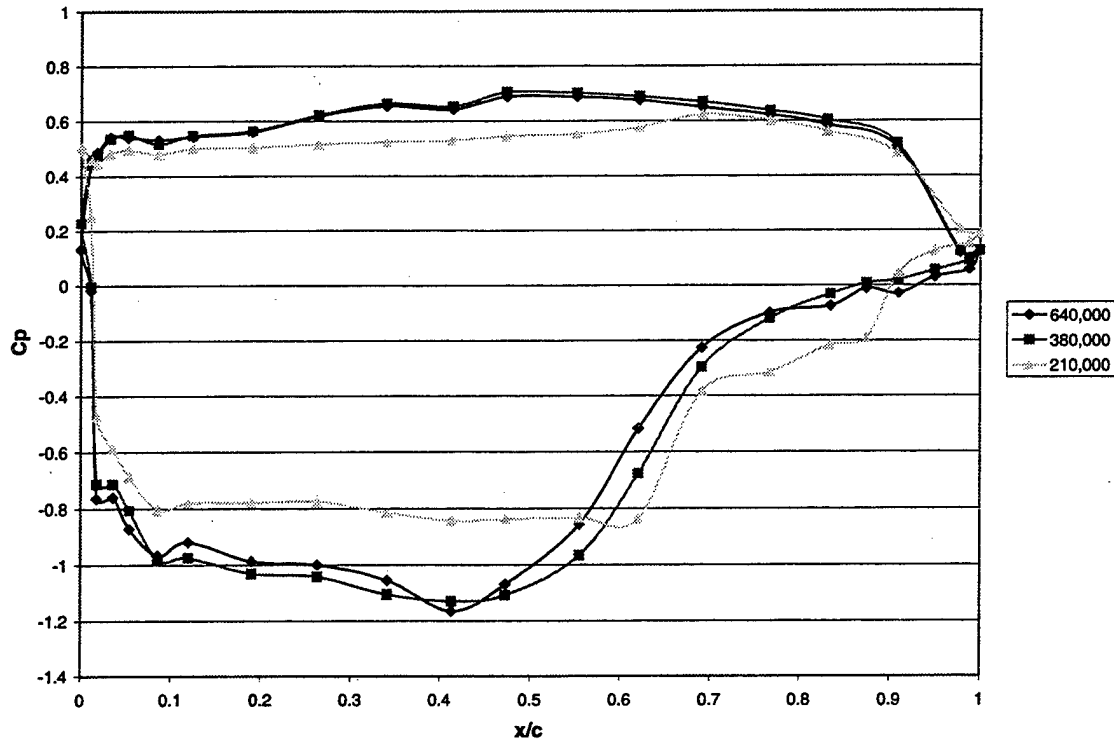
Figure 8. Cp Distributions

B. FLOW VISUALIZATION

Flow visualization was performed at the high and low Reynolds number to obtain an overall impression of the flow on the blade surfaces.

The flow visualization for the high Reynolds number is shown in Figure 9. The flow at this tunnel speed showed three-dimensional characteristics due to the endwall vortices, which formed against the tunnel wall and traveled inward as the flow continued over the blades. The flow about the midspan of the blade was symmetrical, and a comparison of blades 3 and 4 showed good periodicity at this location.

14
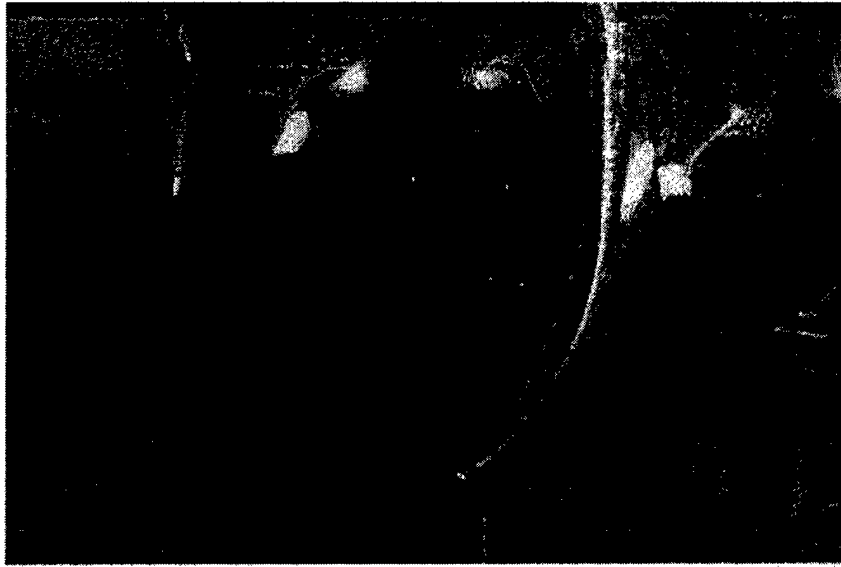
Figure 9. Flow Visualization at Re = 640,000

The flow visualization for the low Reynolds number is shown in Figure 10. At this tunnel setting, the flow was primarily two-dimensional across the span of the blade. A region of separation could clearly be seen between 35 and 55 percent of the chord. The roughness of the separation line suggests that the boundary layer transitioned to turbulent flow prior to the separation. The flow reattached turbulent, as can be seen by the unevenness of the reattachment line. Allowing for the effects of gravity on the fluid bubble at the slower speed, this bubble corresponded well to the separation area shown by the pressure distribution.

Figure 10. Flow Visualization at Re = 210,000

C. INLET FLOW SURVEYS

The inlet flow was initially measured at the high Reynolds number, using a rake probe, to determine flow uniformity and endwall boundary layer thickness. The boundary layers were measured to be 65mm (1.6 inches) on the north wall, and 71mm (2.8 inches) on the south wall, with a constant total pressure area about 40% of the span. The displacement thicknesses were 3.94mm (.155 inches) and 12.09 (.476 inches) and the momentum thicknesses were 3.04 mm (.134 inches) and 9.22 mm (.363 inches) on the north and south walls respectively. This data are given in Appendix B.

LDV measurements were then taken at midspan to further characterize the inlet flow. Inlet surveys were taken at Stations 1 (0.3 C_{ac} upstream), 2 (0.15 C_{ac} upstream) and 3 (0.05 C_{ac} upstream), for all three Reynolds numbers. Station 1 surveys will be discussed in detail to characterize the inlet flow in the test section. Data collected for stations 2 and 3 are summarized in Appendix C. All inlet surveys were carried out using 1,000 data points per measurement. All turbulence intensities were tabulated using two standard deviations of data refinement.

16

1. LDV Surveys at Reynolds number of 640,000

The station 1 survey was used to determine the inlet flow angle of the blades with the new tunnel configuration. The inlet angle at each point is plotted in Figure 11, and the average inlet flow angle was determined to be 40°.
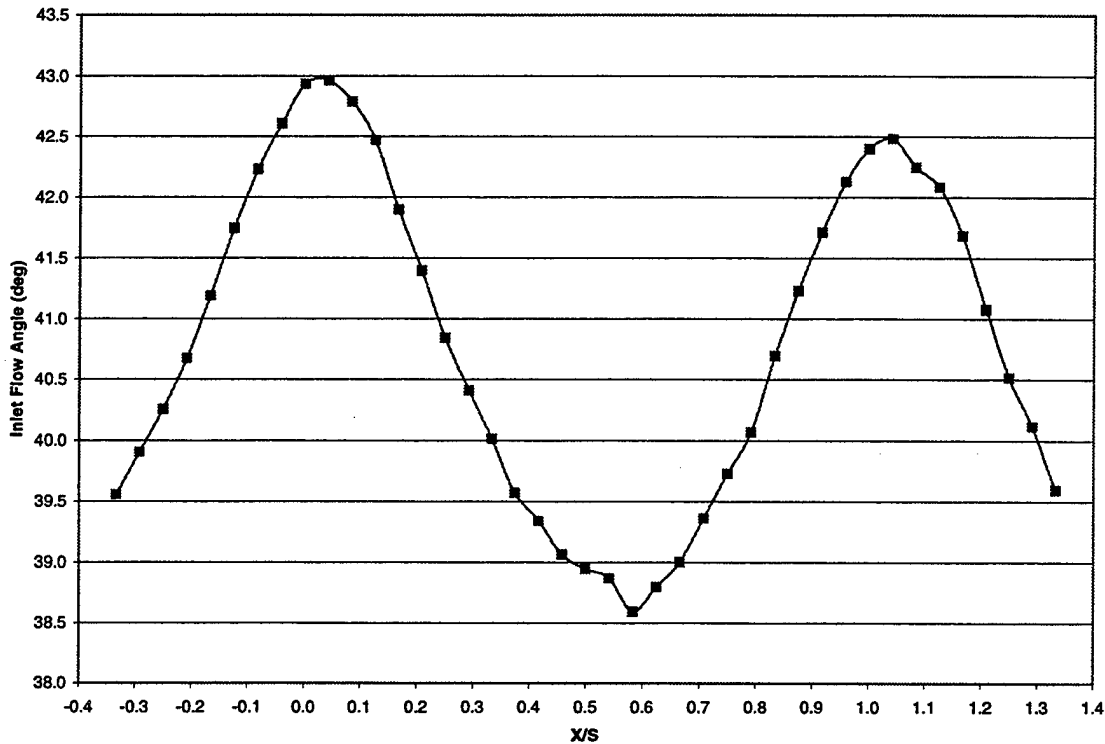
Figure 11. Inlet Flow Angle Distribution at Re = 640,000

The station 1 survey results at the high Reynolds number are shown in Figure 12. This survey indicated almost uniform velocity ratios across the blade space. The disturbance from the blades can be seen as the two dips in the total velocity ratio just prior to the blade locations. Turbulence intensities varied from 1.4 to 1.9%, and seemed to show some downstream influence of the inlet guide vane wakes.

2. LDV Surveys at Reynolds number of 380,000

The station 1 inlet survey at the intermediate Reynolds number, shown in Figure 13, also showed an almost uniform velocity ratio across the blade space. The upstream effect

17
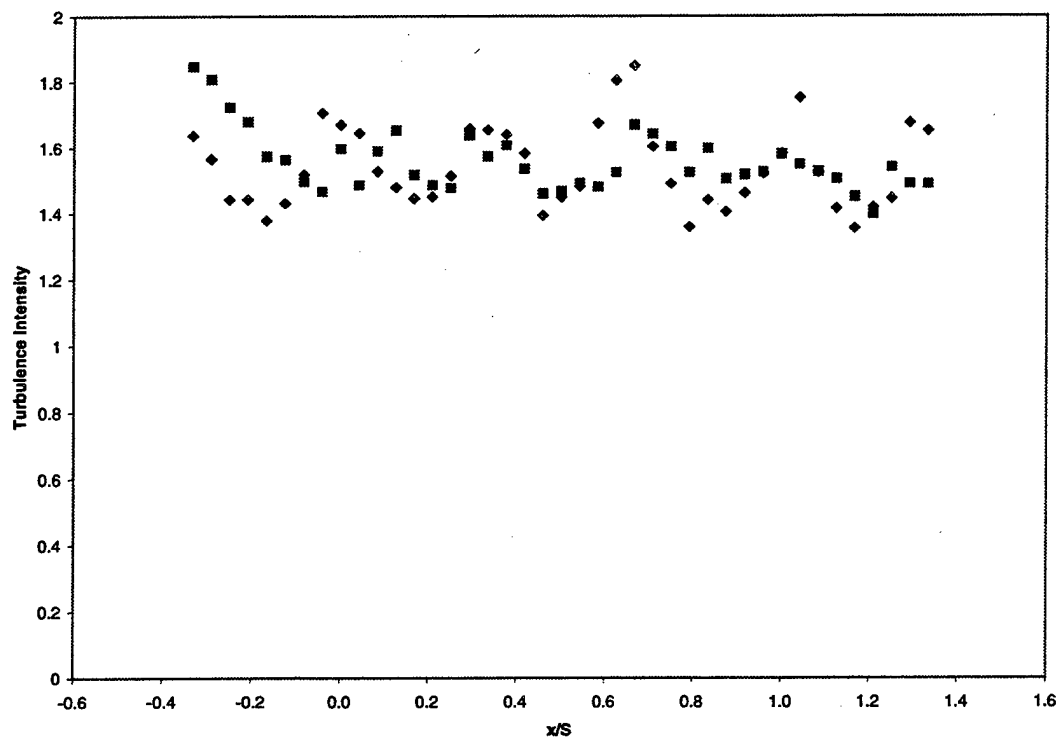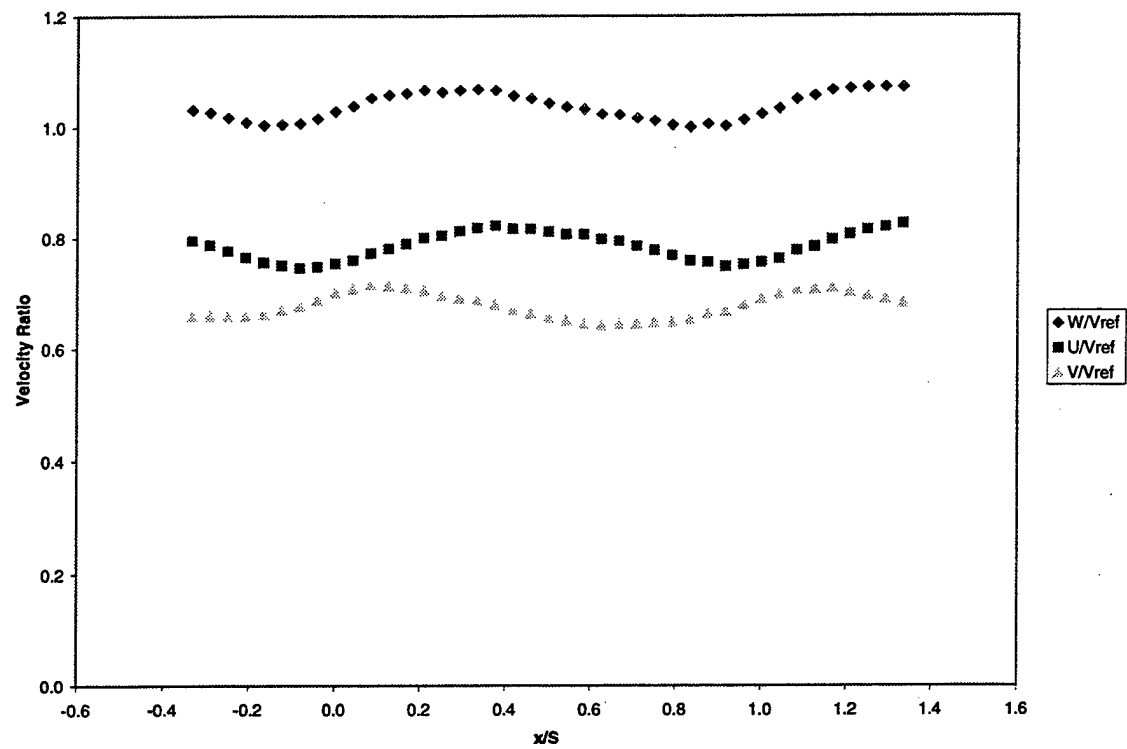
Figure 12. Station 1 Inlet Survey at Re = 640,000

of the blades is seen to be slightly more significant than at the high Reynold number. Turbulence levels increased slightly from the high Reynolds number as was expected, to levels from 1.4 to 2.1%.

### 3.	LDV Inlet Surveys at Reynolds number of 210,000

The results of the station 1 inlet survey at the low Reynolds number are shown in Figure 14. This survey also demonstrated nearly uniform velocity distributions, with the upstream blade effects similar to those at of the intermediate Reynolds number. The turbulence levels were similar to those at the high Reynolds number, varying from 1.4 to 1.8%.
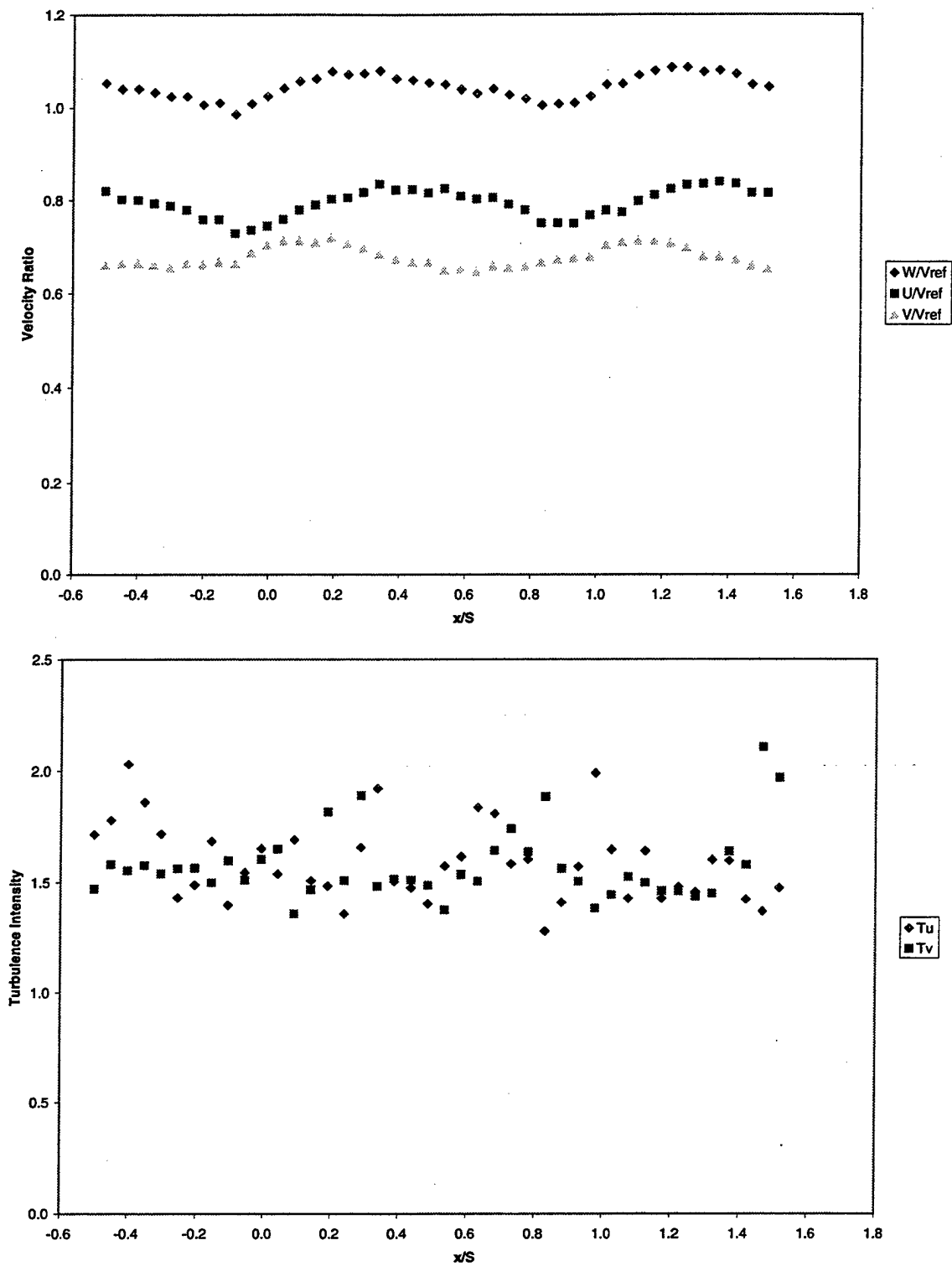
Figure 13. Station 1 Inlet Survey at Re = 380,000
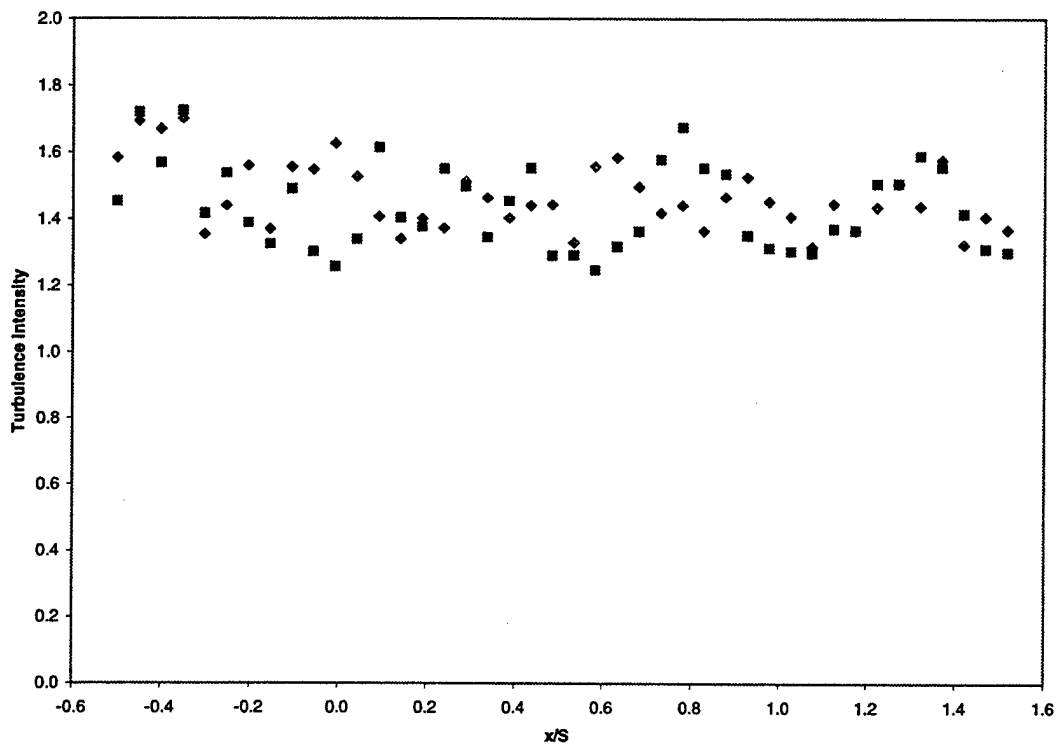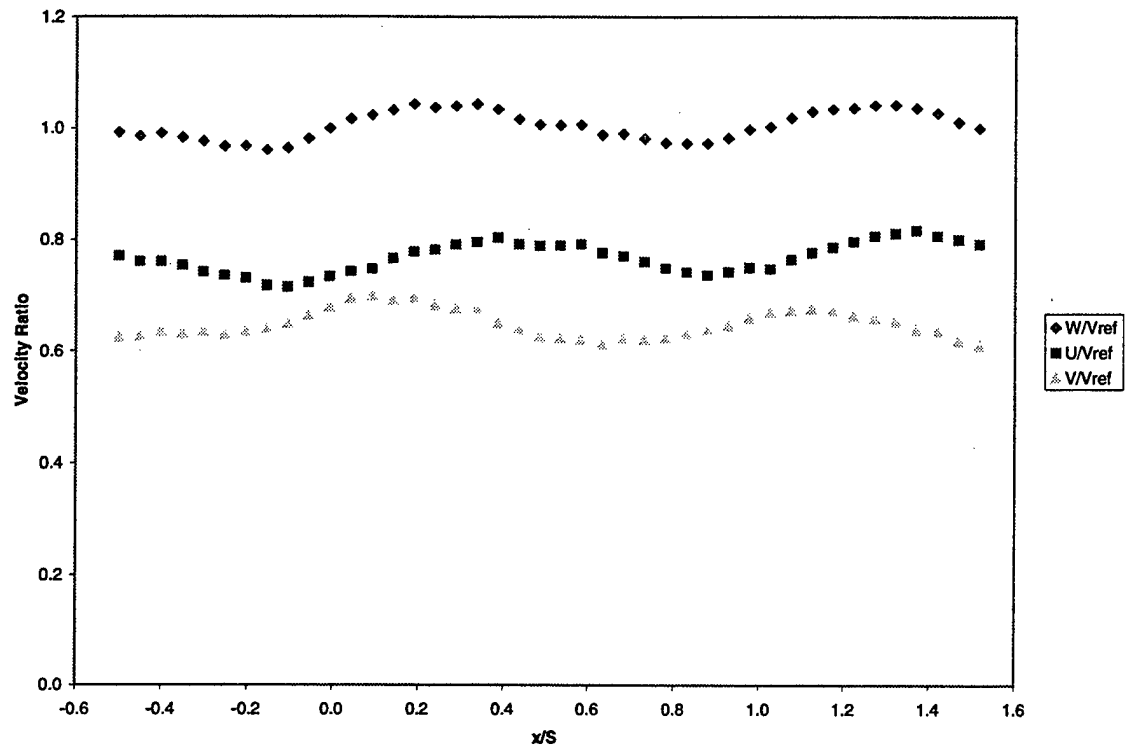
Figure 14. Station 1 Inlet Survey at Re = 210,000

D.   WAKE FLOW

1.   Five-Hole Probe Measurements

Five-hole probe surveys were taken across one blade passage at each of the three Reynolds numbers. The survey at the low Reynolds number was done with measurements every 2.54mm (.1 inch), at the medium Reynolds number every 12.7mm (.5 in) and at the high Reynolds number every 6.4mm (.25 in). The loss coefficient and AVR were calculated using the formulas documented in Appendix D. For the low speed, the loss coefficient was 0.115 and the ADVR was 1.136. For the intermediate speed the loss coefficient was 0.03 and the ADVR was 1.05. For the high Reynolds number, the loss was 0.13 and the ADVR was 1.015. The non-dimensionalized pressure and velocity distributions are shown in Figure 15.
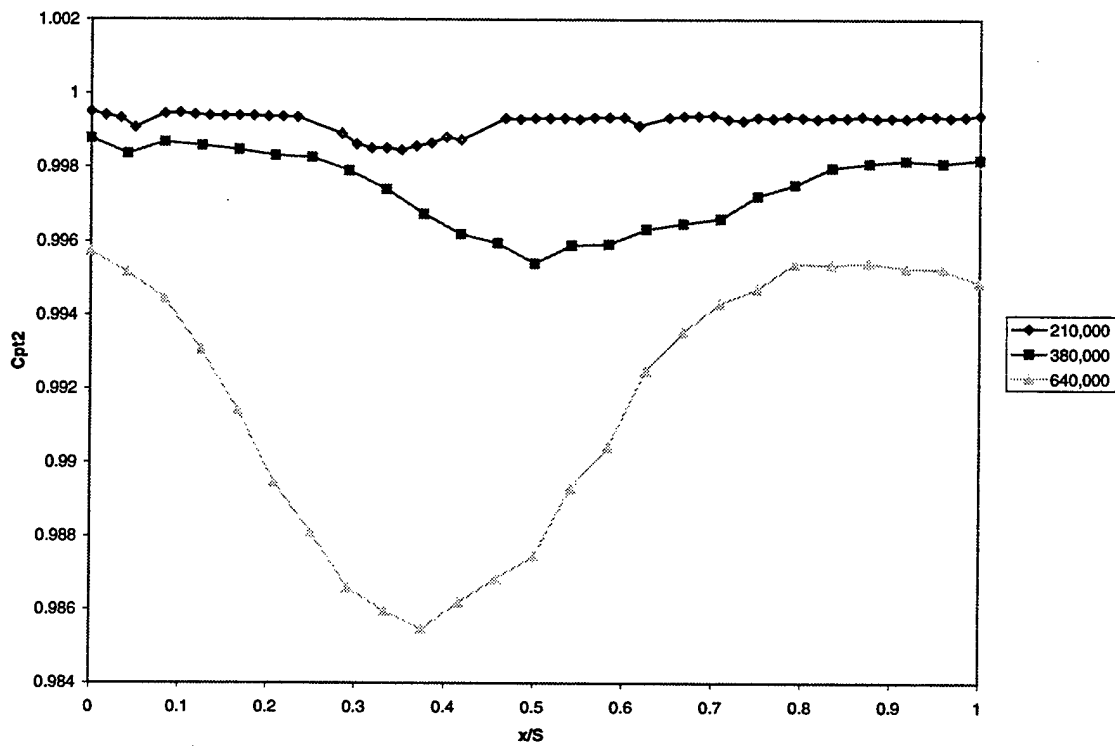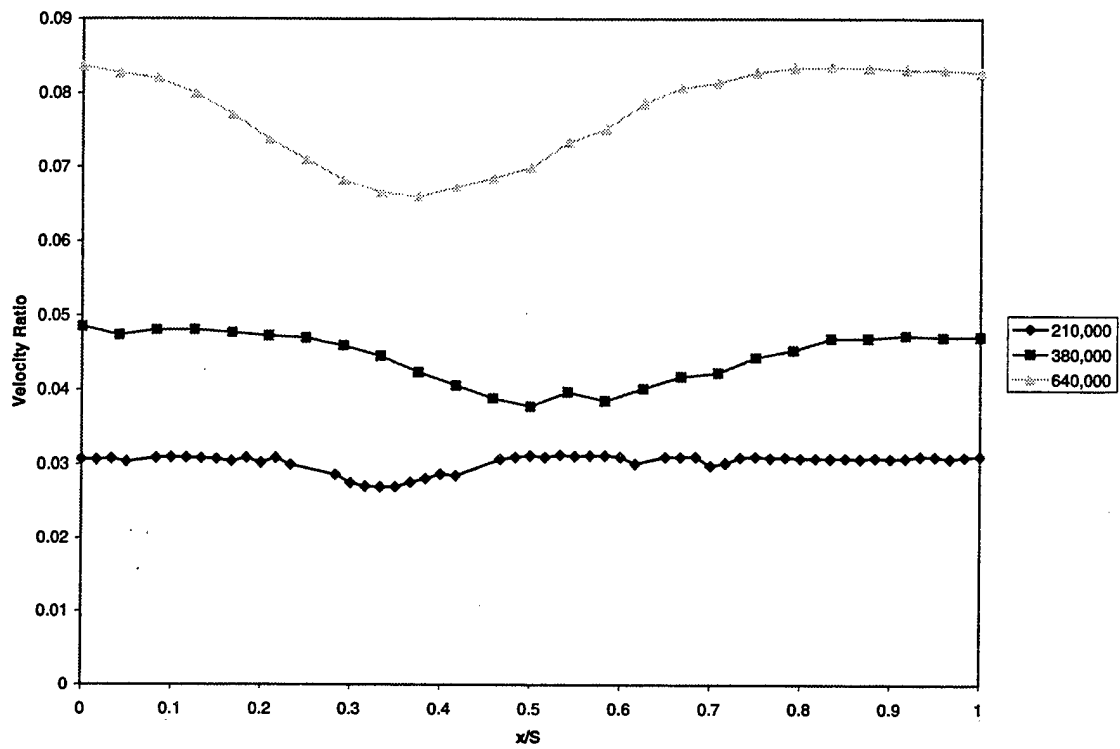
Figure 15. Five-Hole Probe Survey Results

2. LDV Wake Surveys

At all three Reynolds numbers, wake surveys were conducted at stations 11 (1.05 C_{ac} downstream), 12 (1.10 C_{ac} downstream), and 13 (1.20 C_{ac} downstream), between blades 3 and 4. All turbulence data were reduced using refinement bounds of two standard deviations. Station 13 results will be discussed here to characterize the wake flow in the test section. All data collected for stations 11 and 12 are given in Appendix C.

a. Reynolds number of 640,000

The station 13 wake flow survey at the high Reynolds number is shown in Figure 16. The freestream velocity profiles showed that a maximum was reached on either side of the wake which then slightly decreased towards the center of the wake passage. The tangential turbulence intensity varied from 2% in the freestream to a single peak maximum of 47%. The axial turbulence intensity varied from 2% in the freestream to a maximum of 18% in the two blade wakes.

b. Reynolds number of 380,000

The wake survey at station 13 at the intermediate Reynolds number, shown in Figure 17, was very similar to that at the high Reynolds number. The velocity ratios were almost constant in the freestream and then fell off significantly in the wake of the blade, although the drop was less than that at the high Reynolds number. In contrast to the high Reynolds number, the tangential turbulence intensity ranged from 2% to a maximum at each blade trailing edge of 50% and the axial turbulence intensity peaked at 28% in the same region.

c. Reynolds number of 210,000

At the low Reynolds number, shown in Figure 18, the velocity ratios showed a significantly smaller decrease in the wake of the blade trailing edge than at the higher Reynolds numbers, with the minimum total velocity still at 45% of the freestream
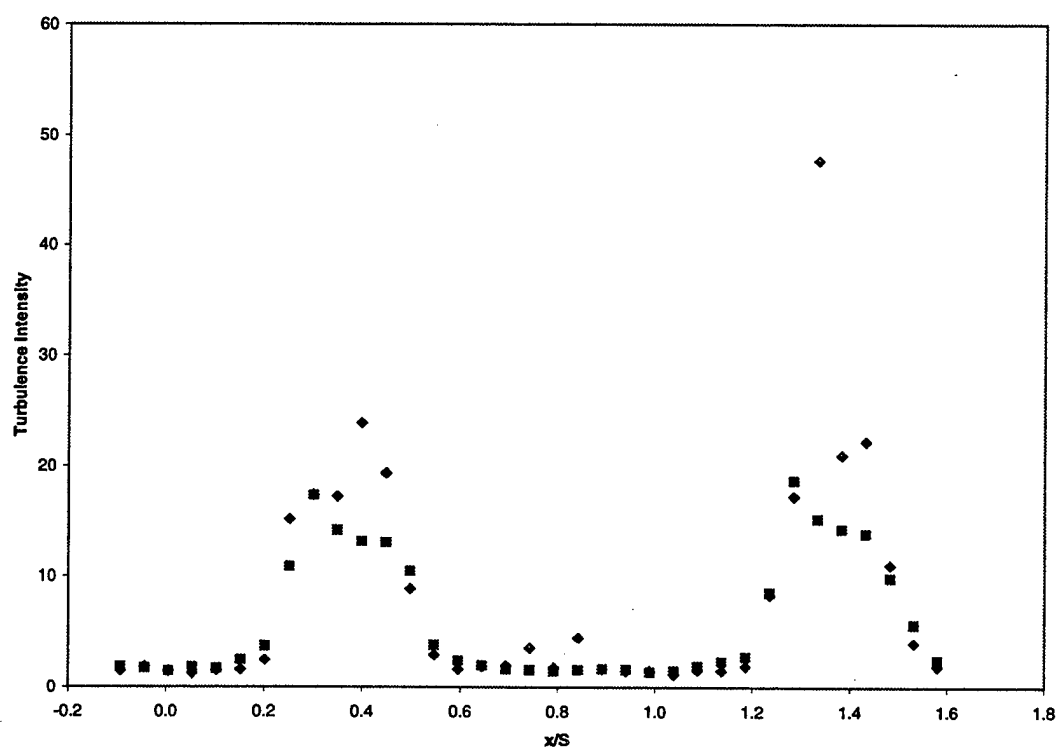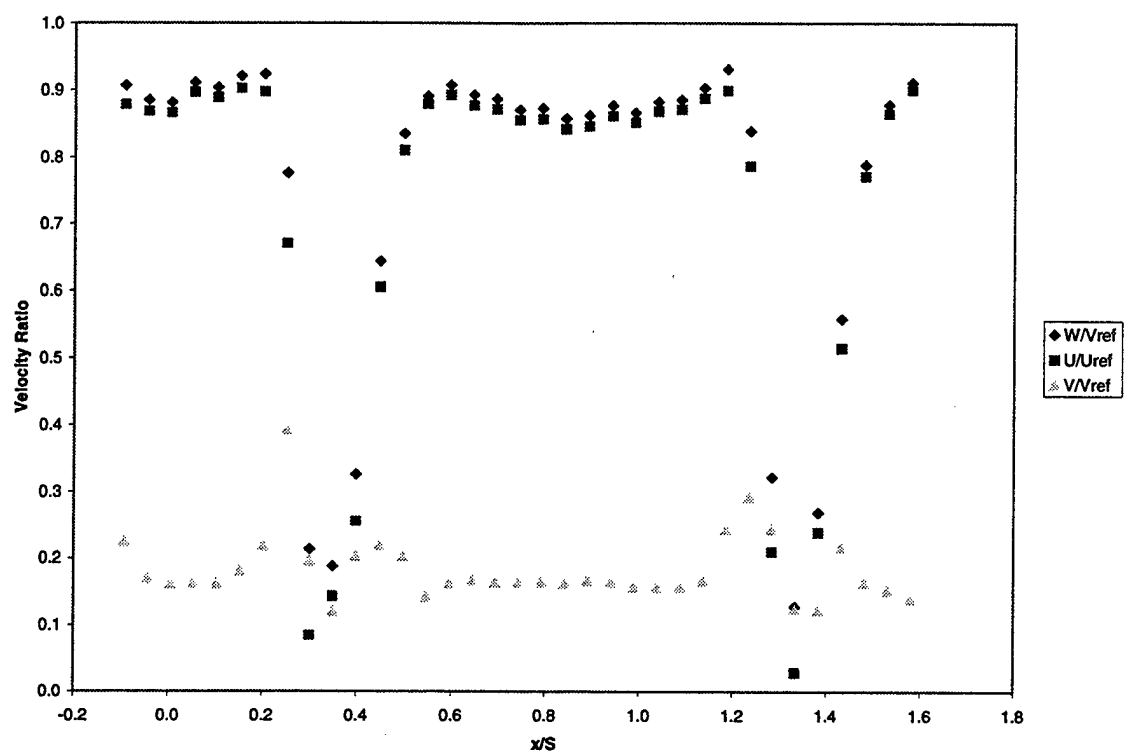
Figure 16. Station 13 Wake Survey at Re = 640,000
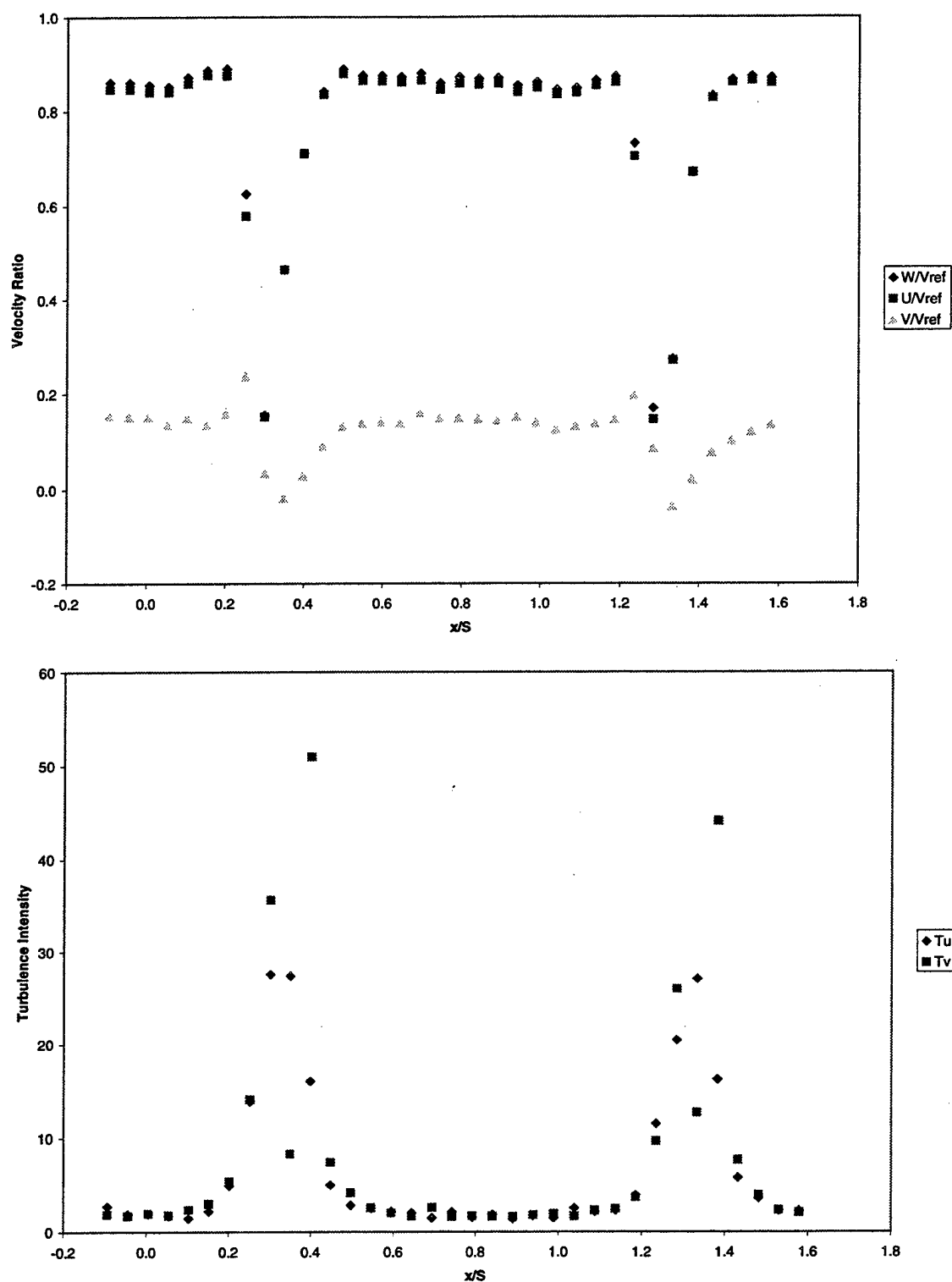
Figure 17. Station 13 Wake Survey at Re = 380,000

value. The freestream velocity ratios were again almost constant. The tangential turbulence intensity was higher than the axial, at the intermediate Reynolds number, with the tangential reaching a maximum at 22% and the axial at 13%.
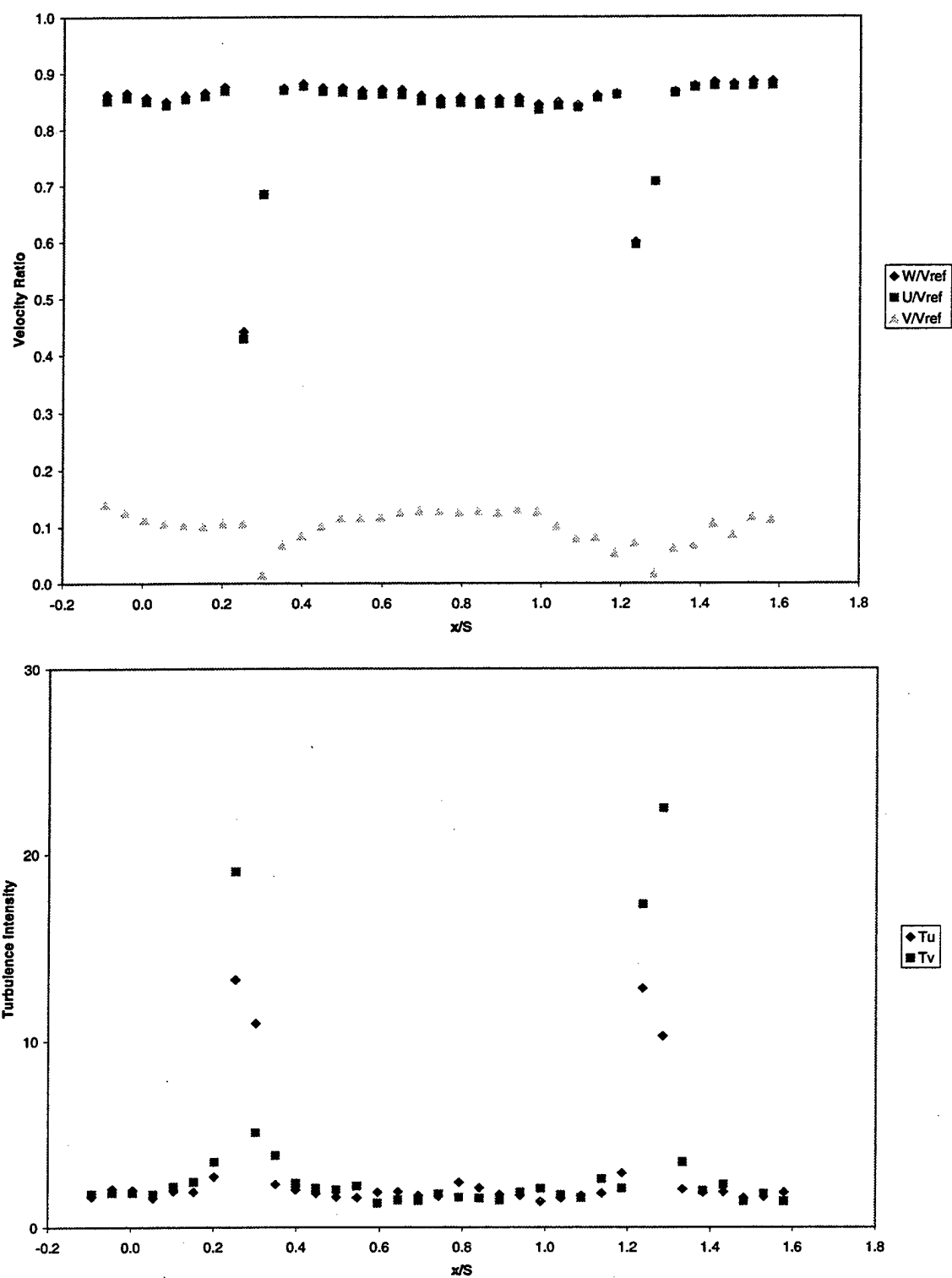
Figure 18. Station 13 Wake Survey at Re = 210,000

28

E. BOUNDARY LAYER SURVEYS

Two dimensional LDV surveys were made of the boundary layer on the suction side of blade 3. The surveys were done at the high and low Reynolds numbers at Stations 5 (0.05 C_{ac}), 6 (0.25 C_{ac}) , 7 (0.5 C_{ac}), 8 (0.75 C_{ac}), and 9 (0.95 C_{ac}). At the low Reynolds number, extra surveys were taken between stations 7 and 8 to characterize the separation region. All boundary layer surveys were made using 1,000 data points per measurement, and traversing perpendicular to the blade surface All turbulence intensities were tabulated using two standard deviations of data refinement. All boundary layer data are presented in terms of a non-dimensional perpendicular distance from the blade surface.

1. Boundary Layer Surveys at Reynolds number of 640,000

The station 5 boundary layer results are shown in Figure 19, and the station 6 boundary layer results are plotted in Figure 20. The total velocity ratio (W/V$_{ref}$) for both surveys were similar at the high Reynolds number. The velocity ratios remained fairly constant throughout the survey, decreasing away from the suction side of the blade into the freestream. Both the tangential and axial turbulence intensities remained fairly constant between the freestream values of 1.4% and 1.8%.

The station 7 boundary layer results are shown in Figure 21. The velocity profiles show five points within the boundary layer. The profile indicated a steep velocity gradient through a layer about .030 d/c thick. The axial turbulence reached a maximum value of 14% close to the blade surface, and leveled out to less than 2% in the freestream. The tangential turbulence intensity peaked at 6%, also close to the blade surface, and leveled to 2% in the freestream.

The station 8 boundary layer results are shown in Figure 22. The profile shows that, close to the blade surface, the axial velocity had reversed, which indicated the presence of a separation region as the flow approached the trailing edge of the blade. Freestream velocity was not reached until beyond .12 d/c. This separation region was the result of corner vortices which introduced three-dimensional flow in the vicinity of the
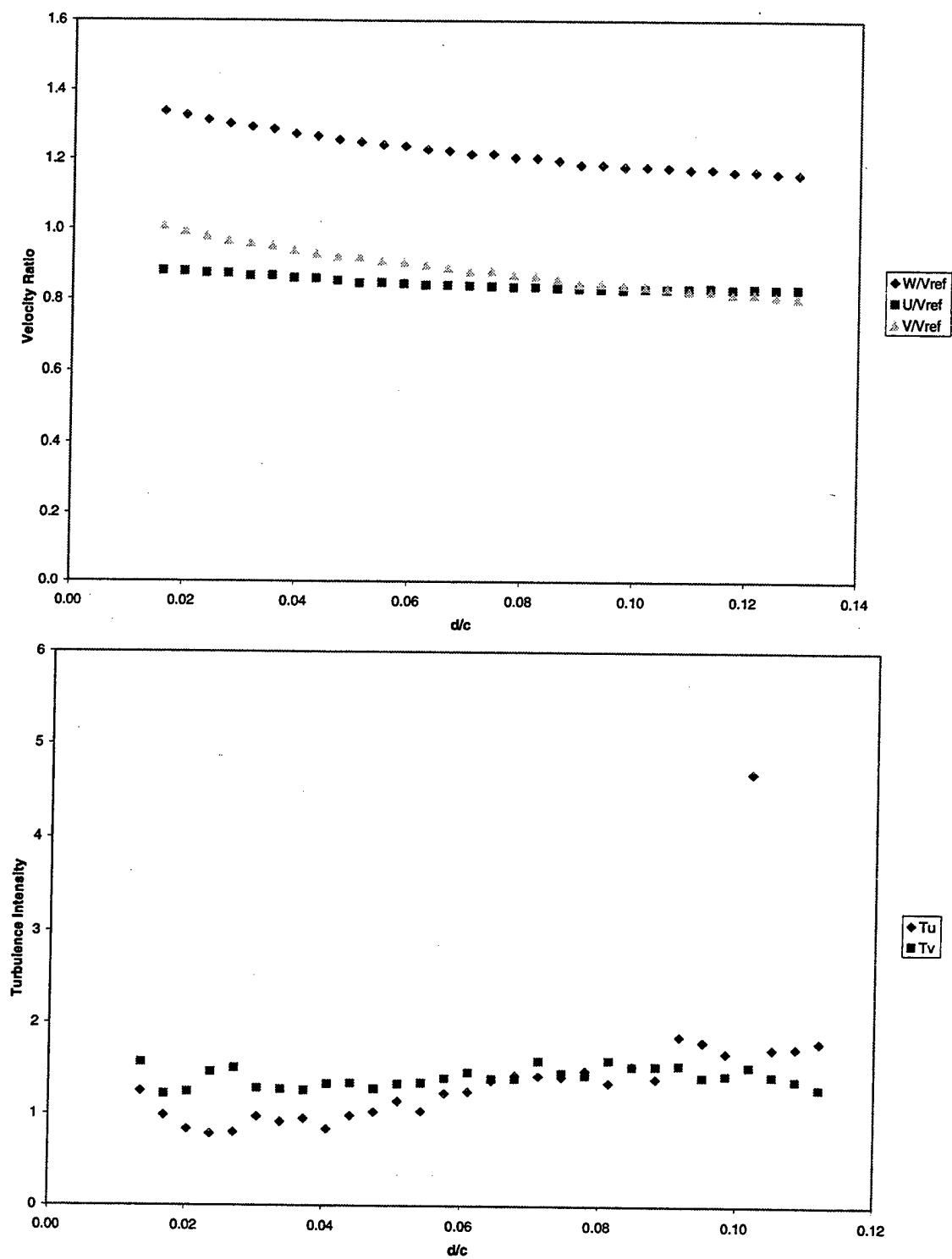
Figure 19. Station 5 Boundary Layer Survey at Re = 640,000
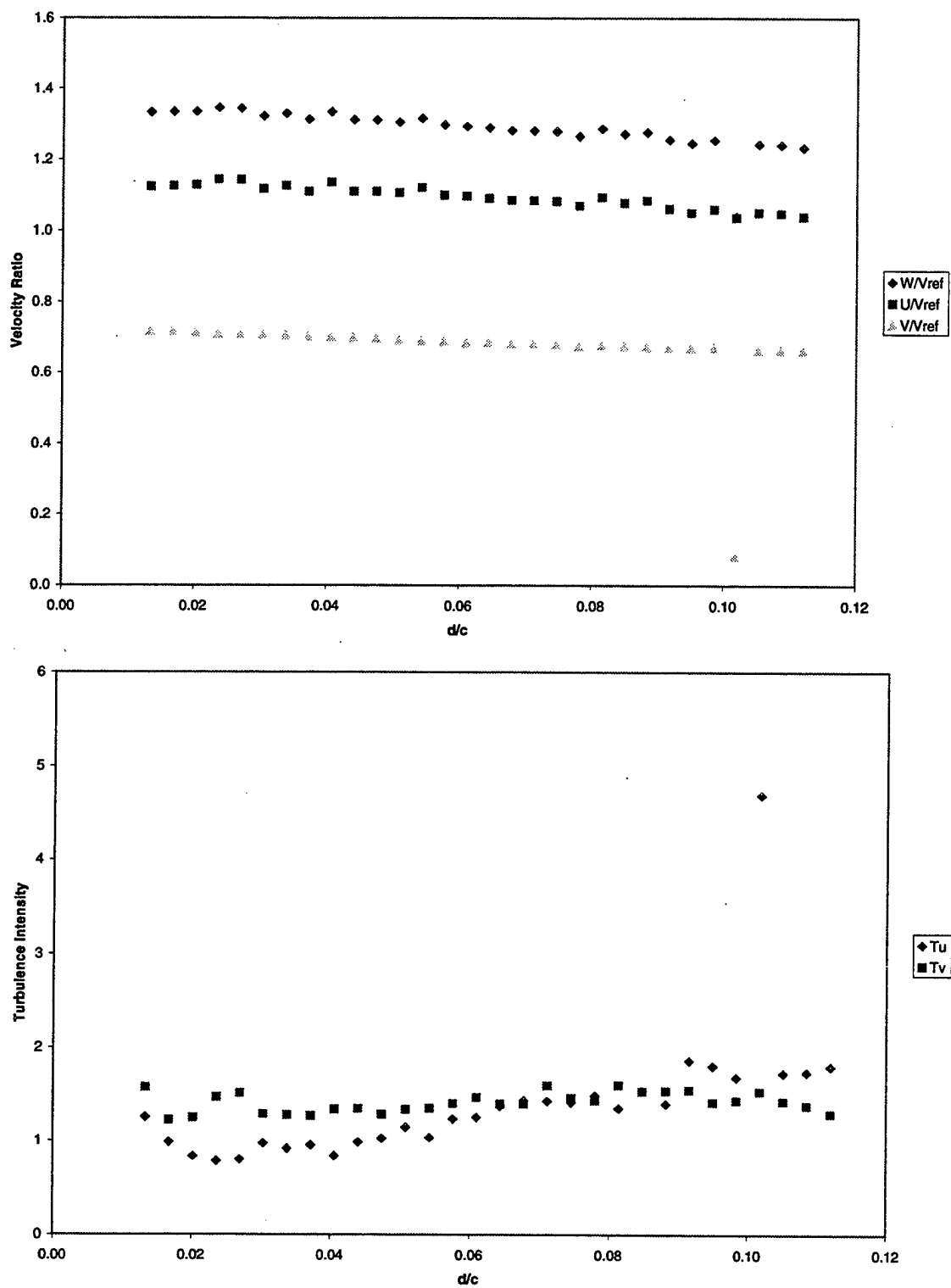
Figure 20. Station 6 Boundary Layer Survey at Re = 640,000

31
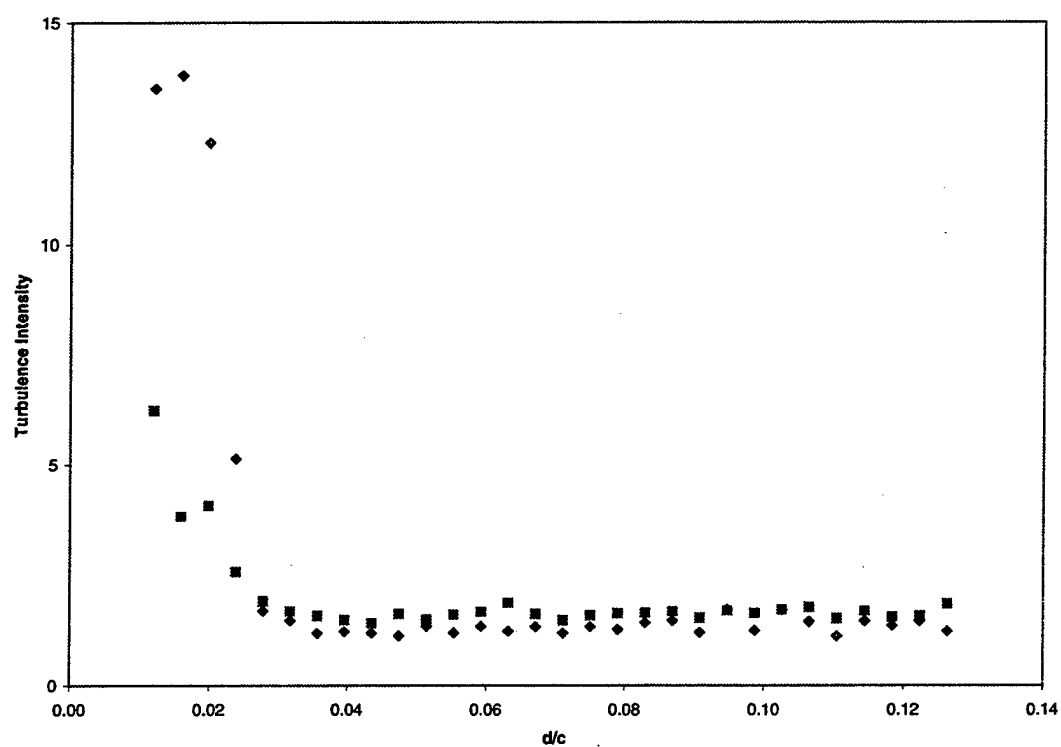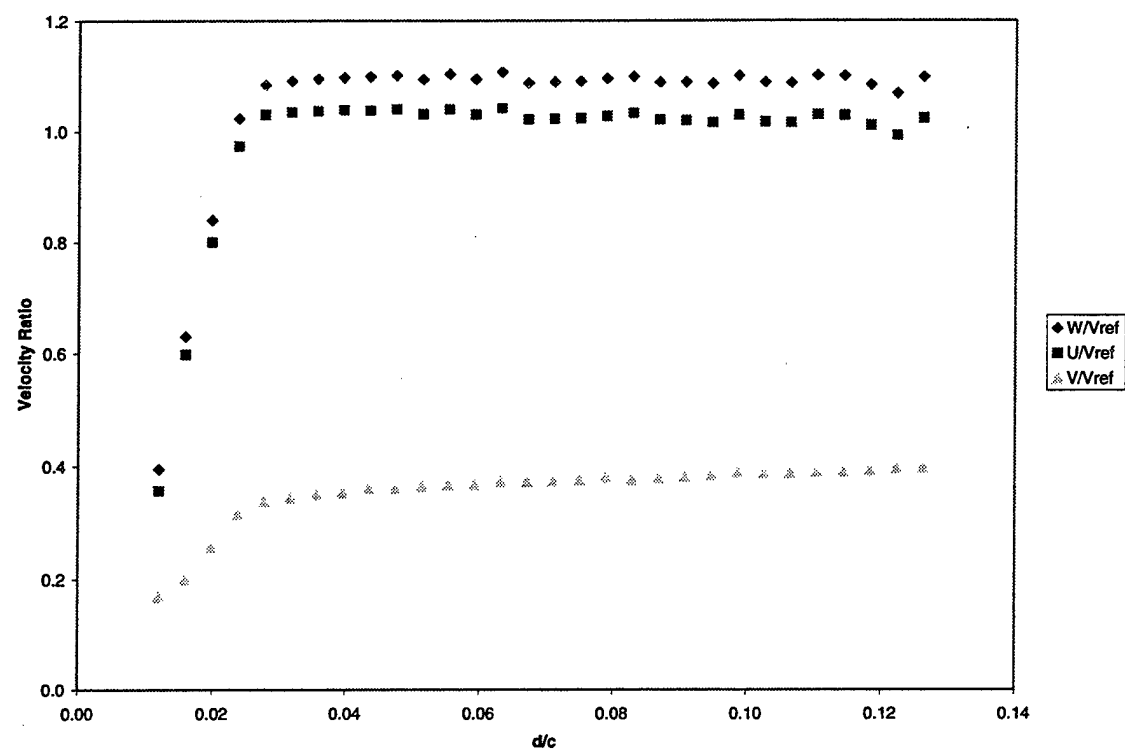
Figure 21. Station 7 Boundary Layer Survey at Re = 640,000
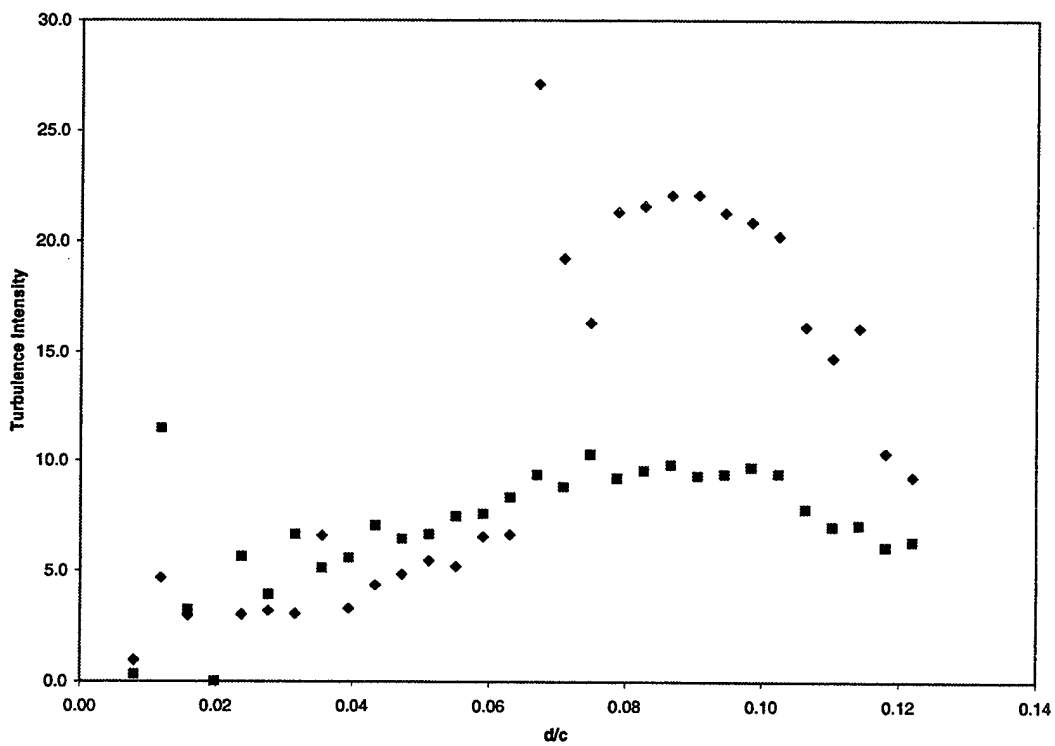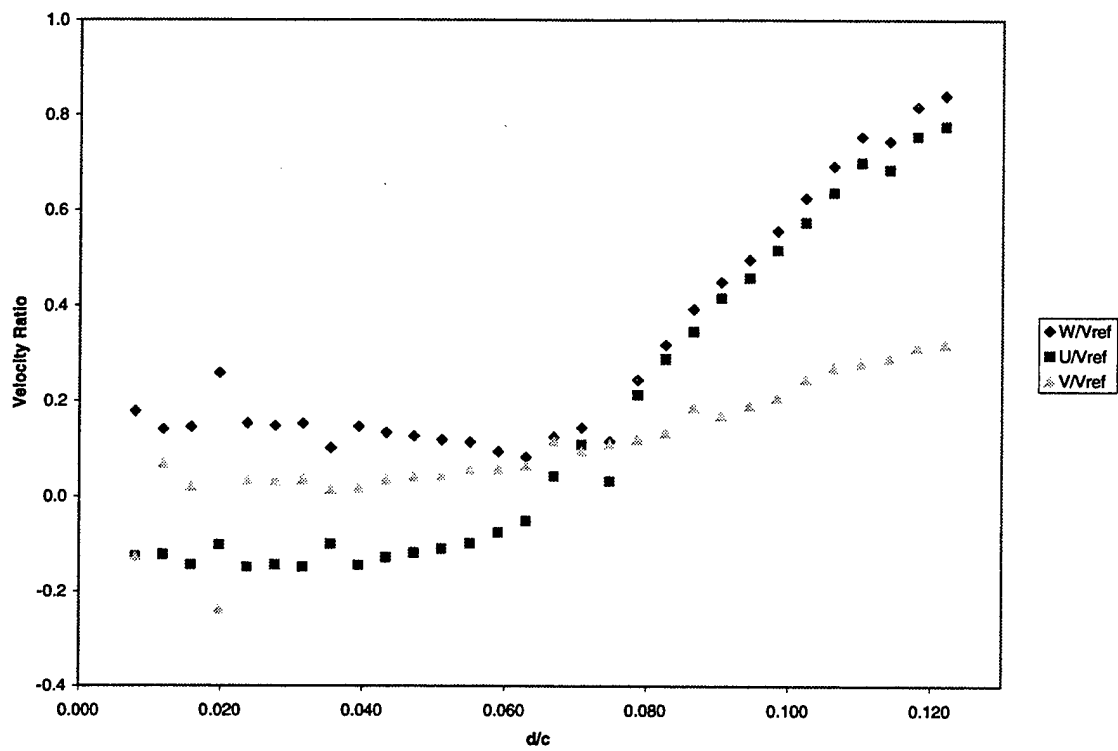
Figure 22. Station 8 Boundary Layer Survey at Re = 640,000

33

blade's trailing edge. The axial turbulence intensity was at a maximum value of 28% at the edge of the separation region. It was approximately 5% near the blade surface and then returned to near 5% in the freestream. The tangential turbulence levels increased from 2% near the blade to 10% at the edge of the separation region, before leveling off to 5% in the freestream.

The results of the station 9 boundary layer survey are plotted in Figure 23. Like the profile at station 8, the axial velocity ratio showed a region of reversed flow from the blade surface to a d/c of about 0.12 caused by the corner vortices. The effect of the separation became more pronounced closer to the trailing edge, as the velocity did not approach freestream values until a d/c of about 0.24. The axial turbulence intensity varied between 2% and 5% within the separation region, peaking at 25% at the edge of the region before returning to freestream values of 3%. The tangential turbulence component gradually increased from 4% at the blade surface to 12% at the edge of the separation region and decreased back to 6% in the freestream.
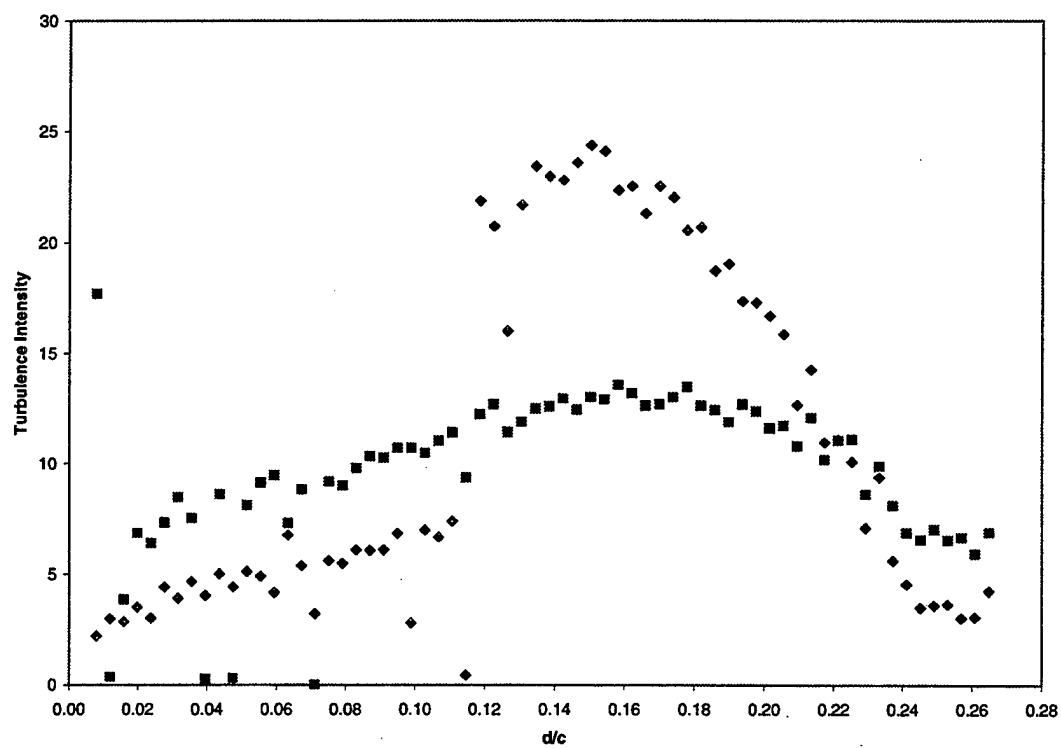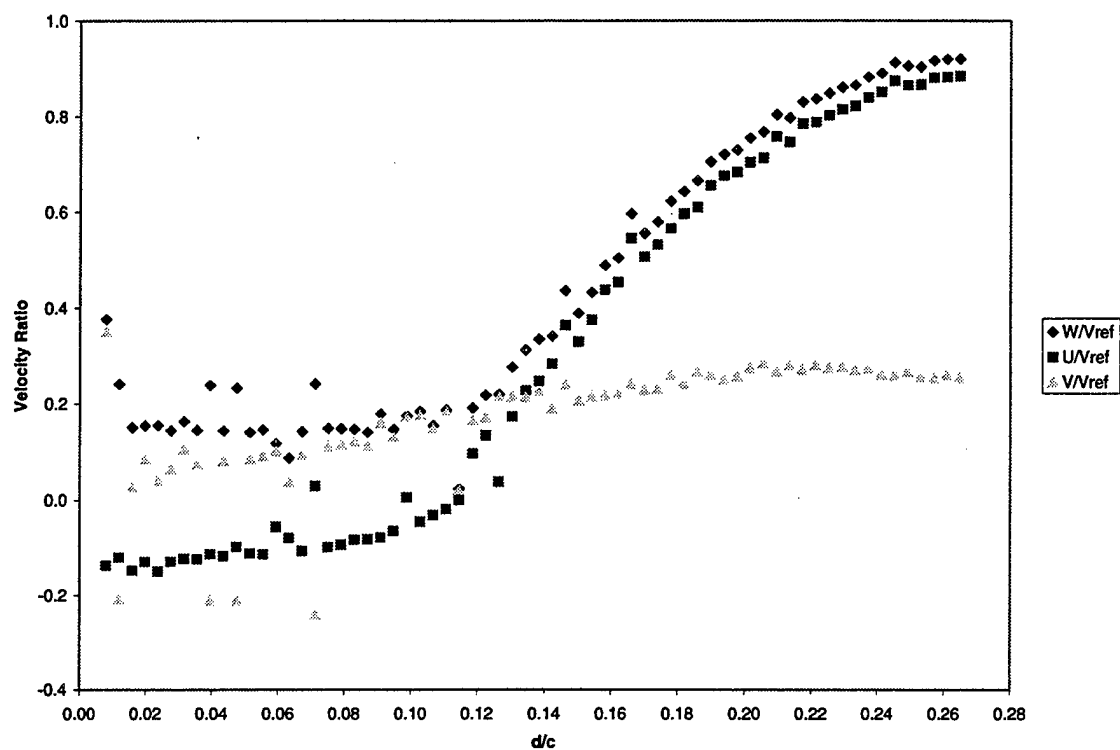
Figure 23. Station 9 Boundary Layer Survey at Re = 640,000

35

2. Boundary Layer Surveys at Reynolds number of 210,000

The station 5 boundary layer results at the low Reynolds number are shown in Figure 24. The velocity ratios were fairly constant throughout the survey, and again decreased slightly in the freestream. The axial and tangential turbulence intensities also remained fairly constant between 1.5% and 2% throughout the survey.

Station 6 boundary layer results are shown in Figure 25. The velocity profile showed a slight decrease for the first two survey points, which indicated that these points were in the boundary layer. The velocities then returned to freestream values, which remained constant throughout the rest of the survey. Both the tangential and axial turbulence intensities reached a maximum at the edge of the boundary layer at 5% and 7.5% respectively. They then decreased to an average below 2% in the freestream.

Two surveys were made at station 7. The coarse survey is shown in Figure 26 with two points in the boundary layer. The turbulence intensities also peaked at these points. The axial value reached a maximum at 3.5% and the tangential intensity at 4.3%, before leveling off at an average intensity of 1.7% in the freestream. The second survey was made closer to the blade and is shown in Figure 27. This survey shows six points in the boundary layer, which could be was indicated to have a thickness of approximately .14 d/c. The tangential turbulence intensity at the first survey point was less than the freestream average, however the axial turbulence intensity peaked at a value of 21% at this same point. The tangential values reached a maximum at the second point at 3.5% and then leveled off to 2%. The axial turbulence intensities decreased consistently to a freestream value below 2%. The first point should be disregarded, as the probe volume was most probably touching the blade surface. This was due to the 5° yaw angle of the LDV axis versus 4° used by Schnorenberg[Ref. 4].

Station 7.25 boundary layer results are shown in Figure 28. The velocity profiles indicated seven points within the boundary layer, with the nondimensionalized velocity ratio near the blade surface falling to .8 from values of 1.2, as in the previous surveys. The boundary layer thickness was approximately .05 d/c at this station. Both the axial and tangential turbulence intensities peaked at the first point in the survey, at values of 27% and 34% respectively. This survey was indicative of flow over a laminar separation

36
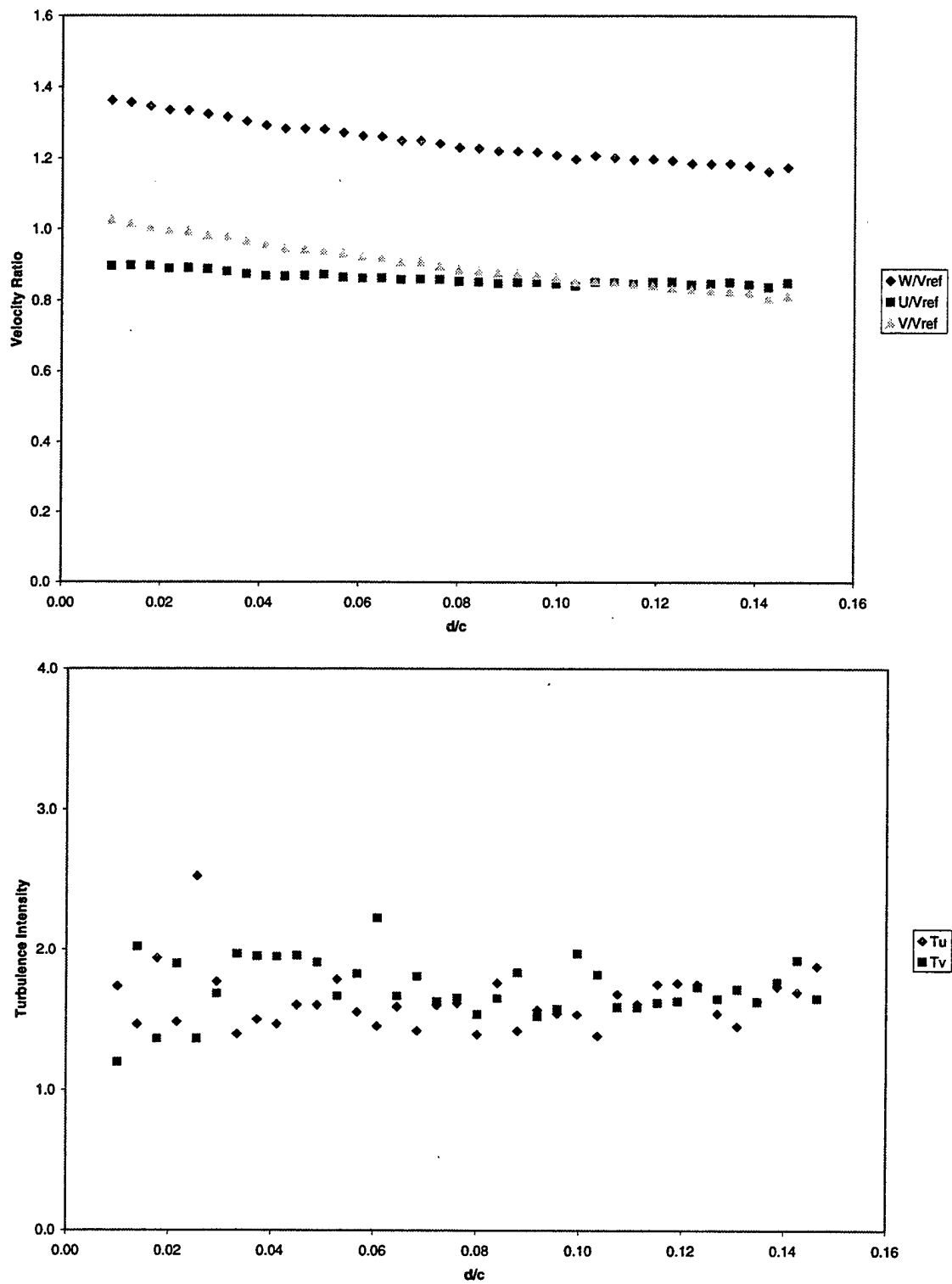
Figure 24. Station 5 Boundary Layer Survey at Re = 210,000
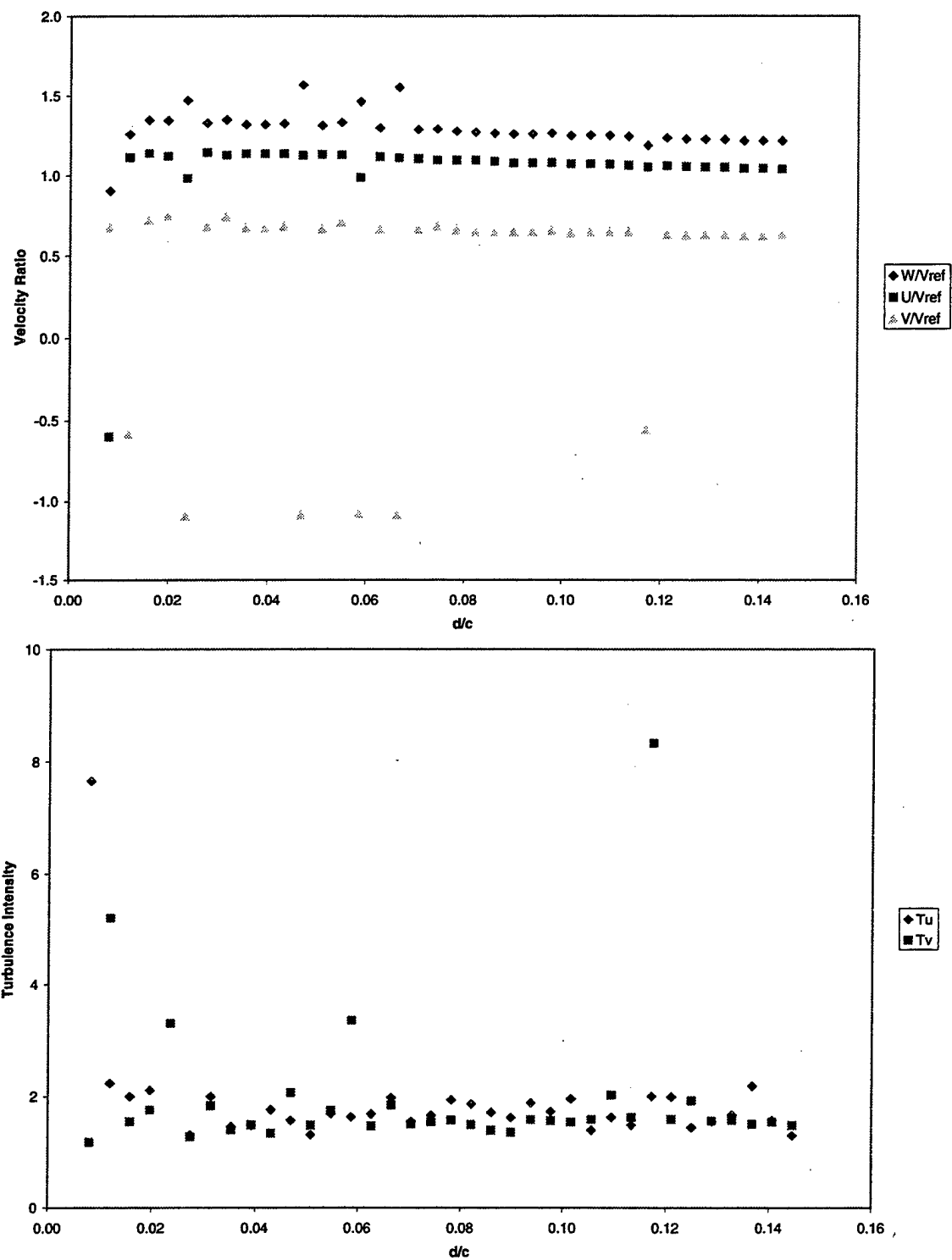
Figure 25. Station 6 Boundary Layer survey at Re = 210,000
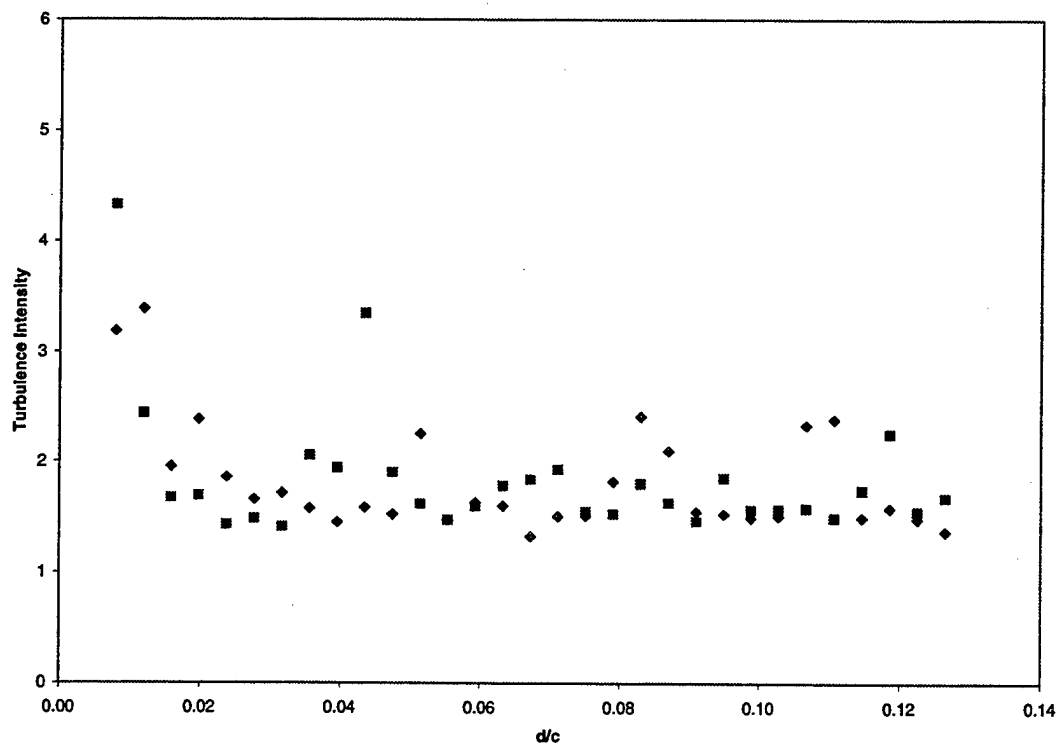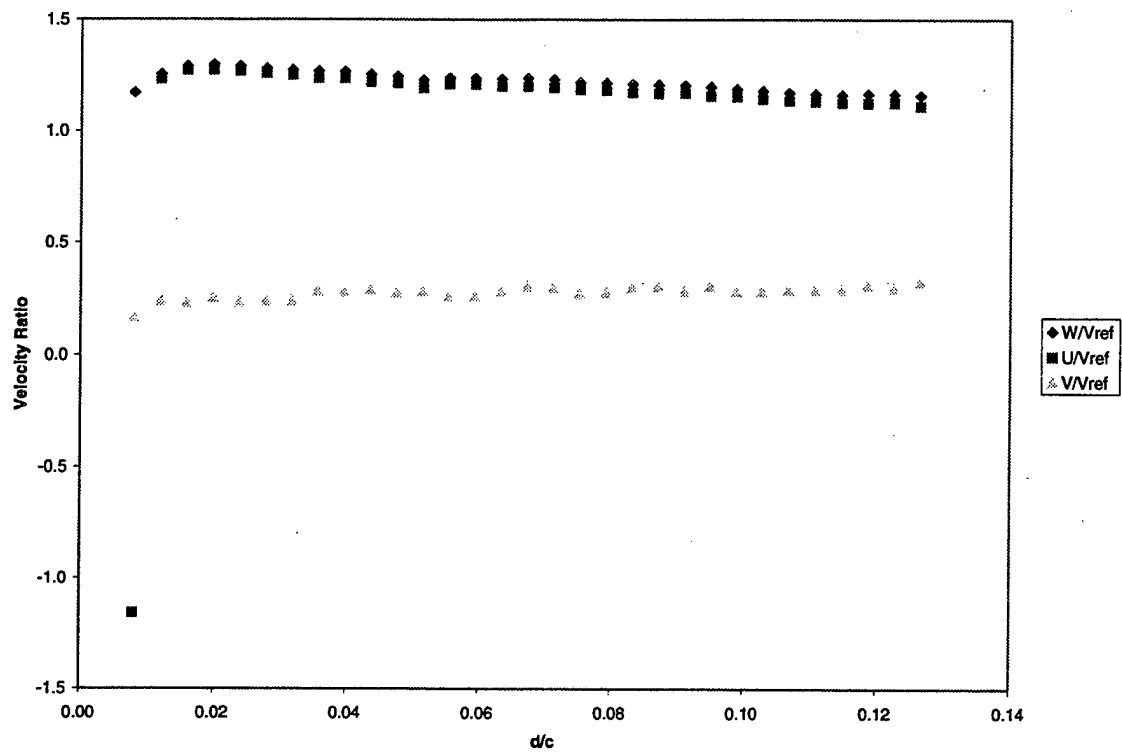
Figure 26. Station 7 Coarse Boundary Layer Survey at Re = 210,000
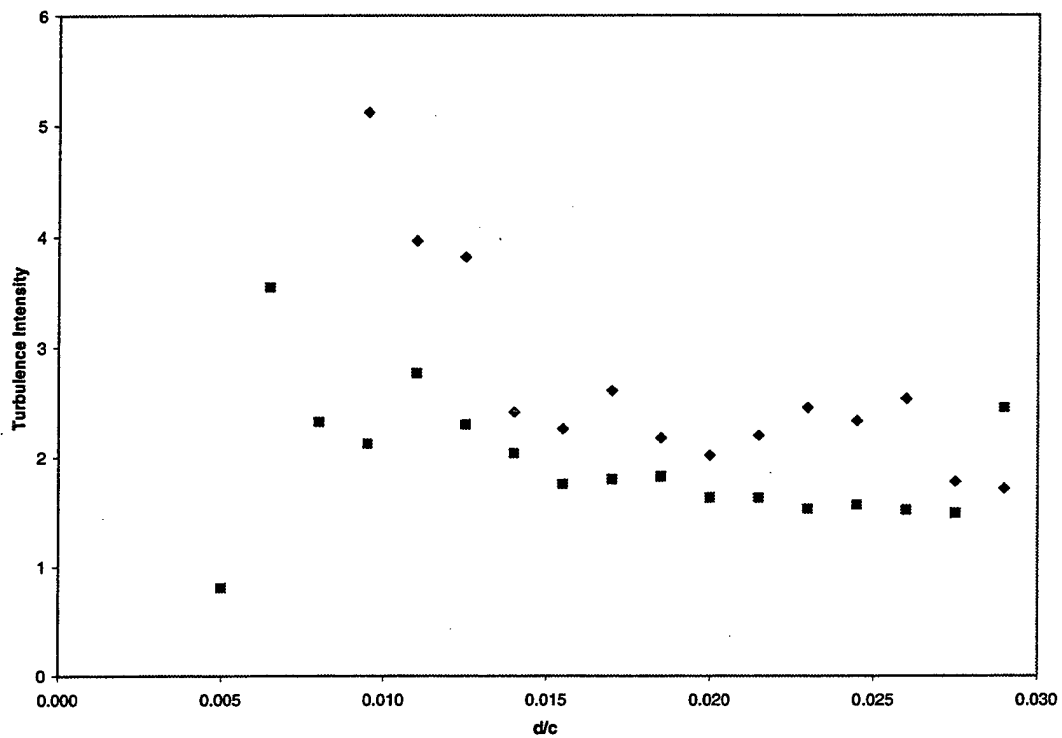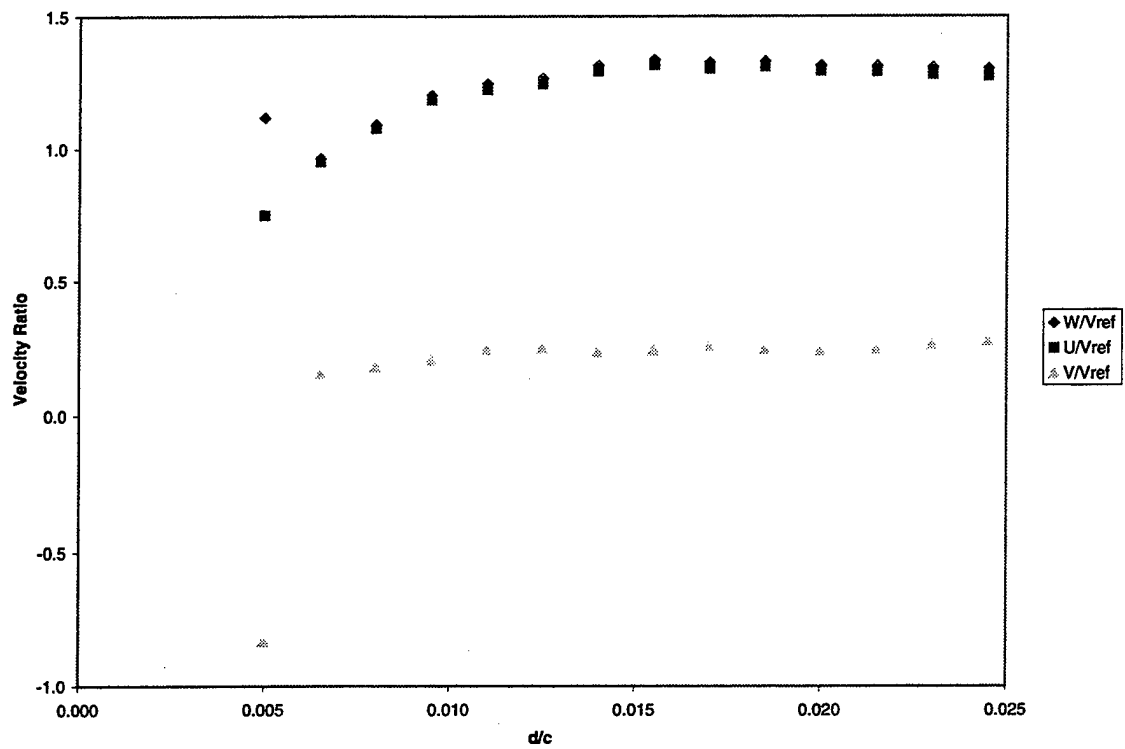
Figure 27. Station 7 Fine Boundary Layer Survey at Re = 210,000

40
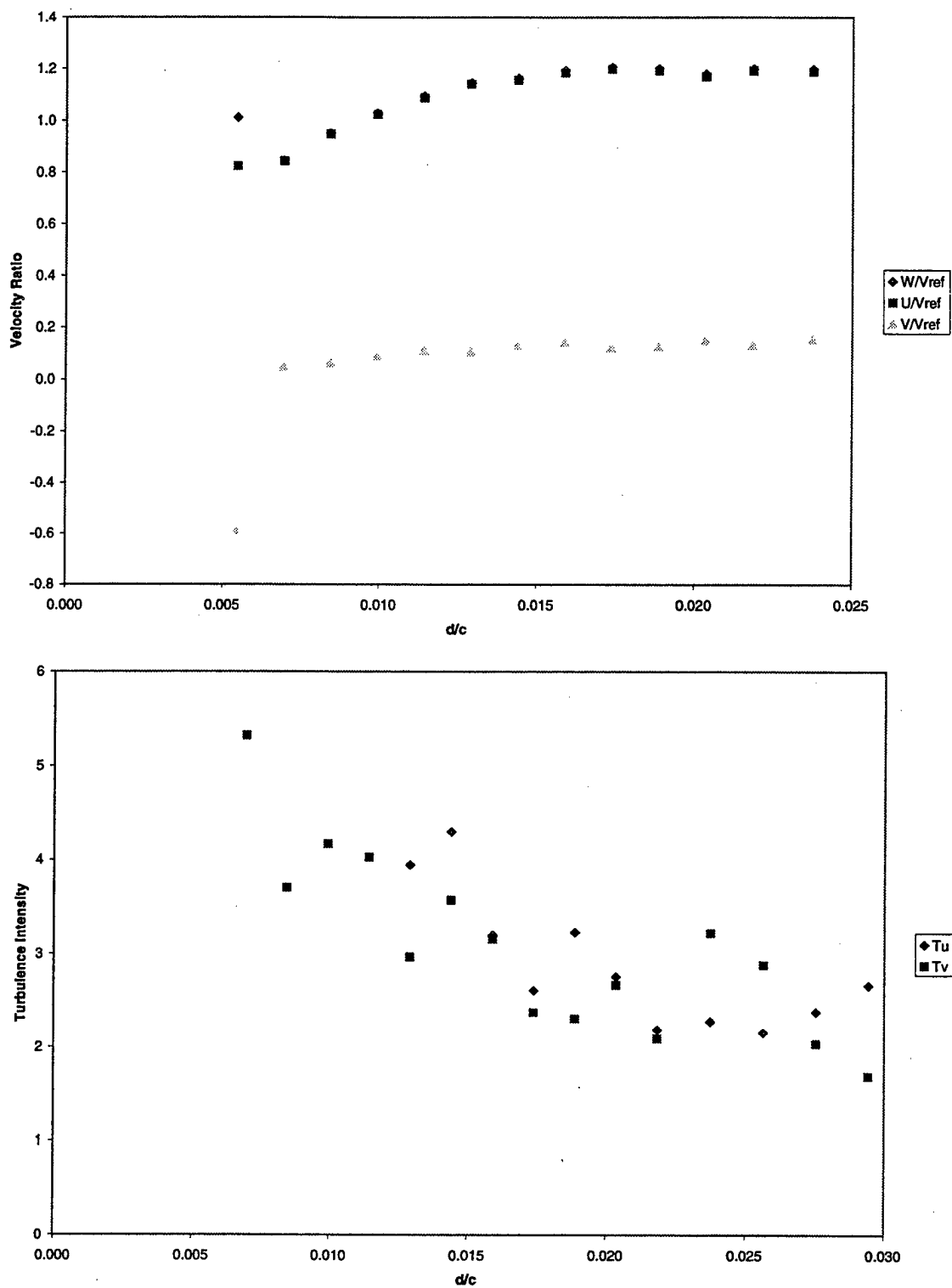
Figure 28. Station 7.25 Boundary Layer Survey at Re = 210,000

41

bubble because the rest of the turbulence intensity values remained at or close to the freestream values.

Station 7.5 boundary layer results are shown in Figure 29. The velocity ratio fell to 0.6 near the surface of the blade and the dimensionless boundary layer thickness was approximately .015 at this location. The turbulence levels were significantly higher on this survey, with the axial turbulence peaking at 28% and the tangential turbulence peaking at 18%, before leveling out in the freestream. These high turbulence levels at the points closest to the blade indicated that transition had occurred within the separation bubble.

The boundary layer results for station 7.75 are plotted in Figure 30. The profile at this station indicated reattachment of the boundary layer judging by the negative tangential velocity for the first three points closest to the blade surface. The velocity ratio was a minimum of 0.3 near the blade surface and increased to a freestream value of 1.2. The turbulence levels showed two peaks in axial turbulence. The first peak at 17% showed the growth of a new boundary layer beyond the separation point. The second peak was in the shear layer, which developed over the bubble.

The boundary layer results at station 8 are shown in Figure 31. The velocity profile at this station indicated a fully turbulent reattached boundary layer. Both axial and tangential turbulence intensities peaked at values near 18% before leveling of to values of 3% in the freestream.

The boundary layer results at station 9 are shown in Figure 32. This boundary layer profile also indicated attached turbulent flow. The linear increase of the velocity profile within the boundary layer between d/c equal to .01 and .05 was indicative of a turbulent boundary layer profile. The turbulence showed a peak of 18% in the axial intensity, and varying levels of tangential turbulence, which was consistent with the presence of vortices that were seen in the flow visualization. The final extent of the boundary layer was approximately 0.08 d/c, compared to the .25 d/c at the higher Reynolds number.

42
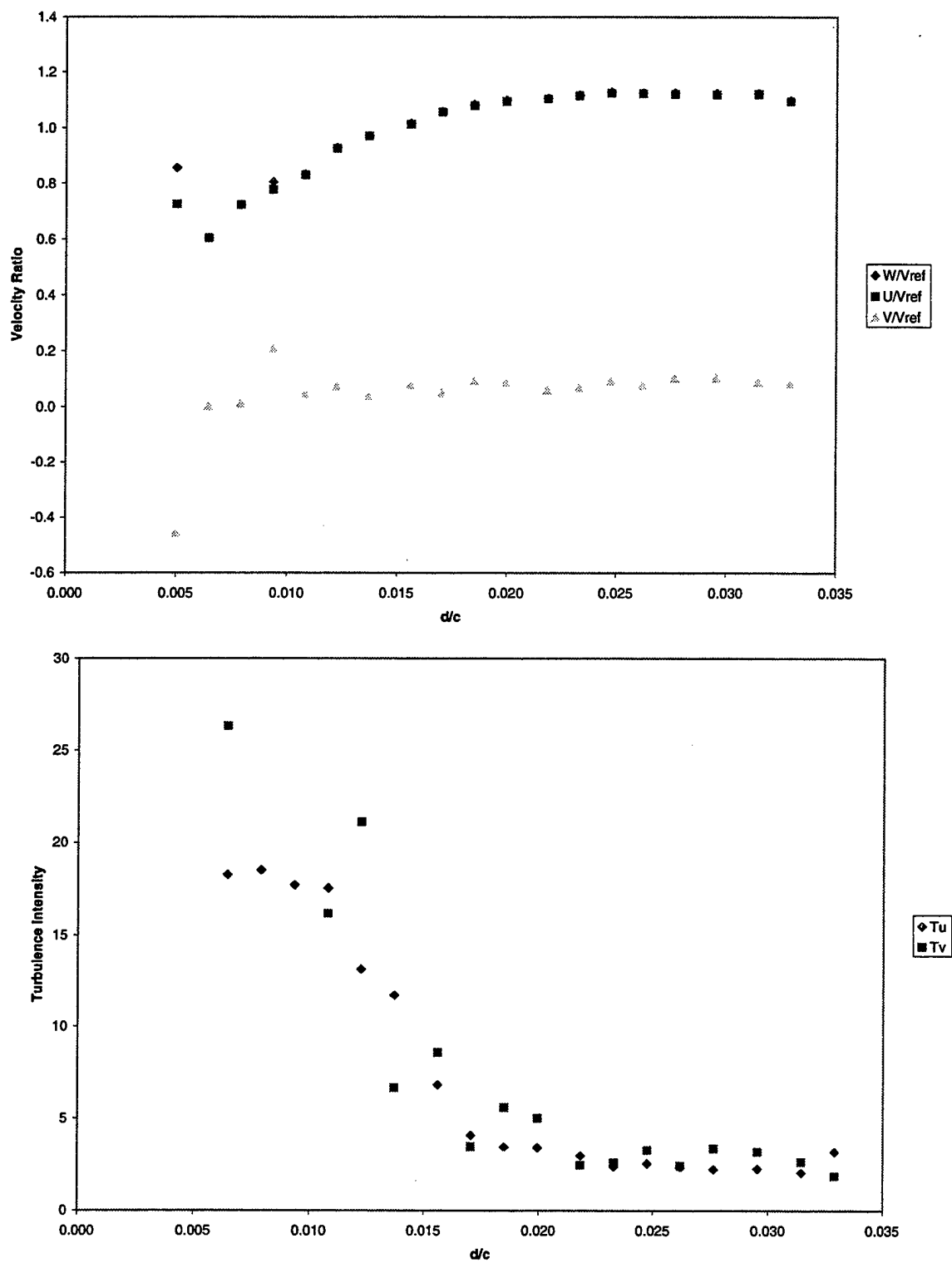
Figure 29. Station 7.5 Boundary Layer Survey at Re = 210,000

43
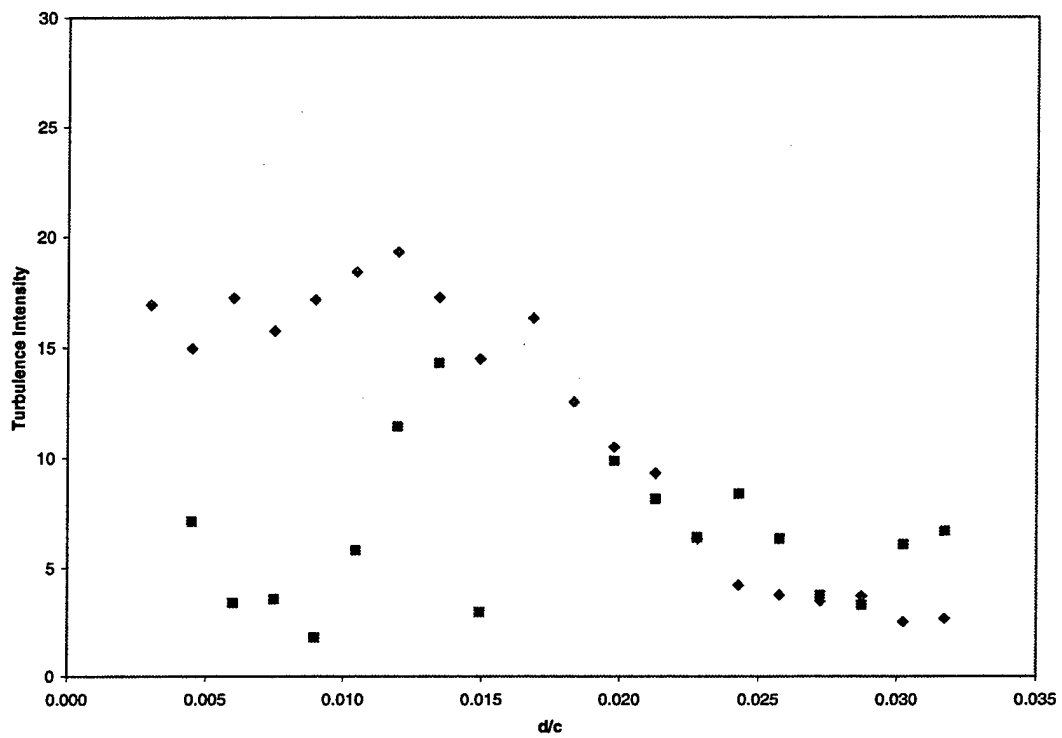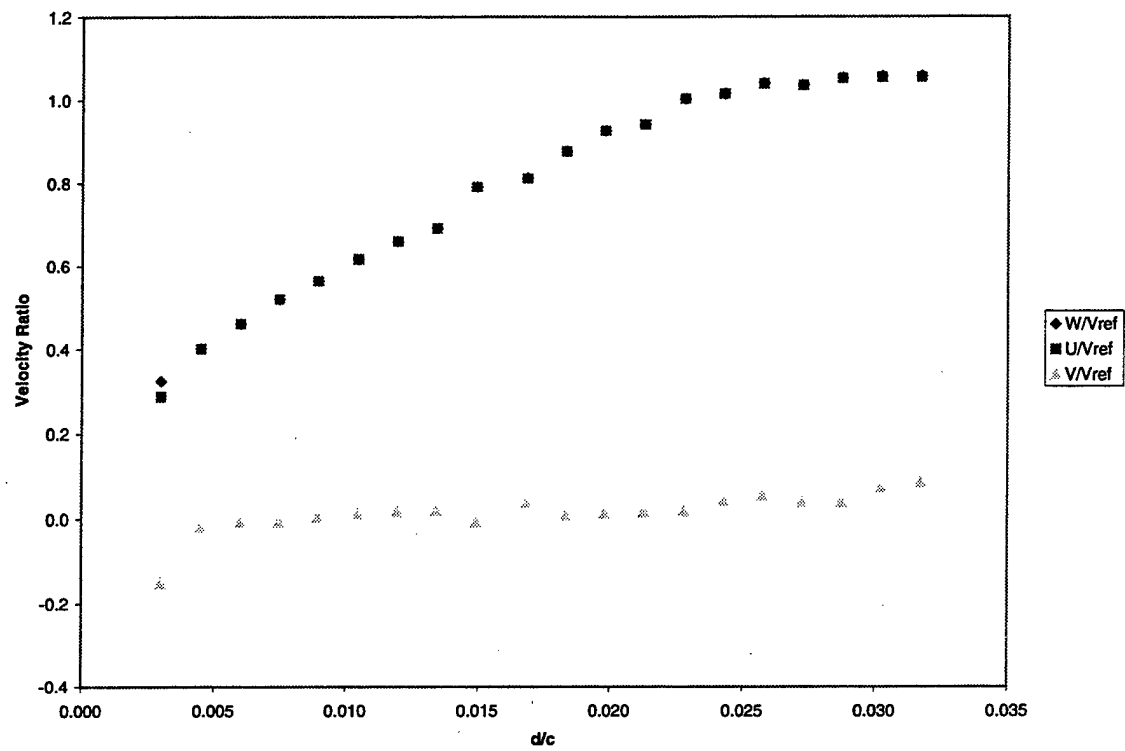
Figure 30. Station 7.75 Boundary Layer Survey at Re = 210,000

44
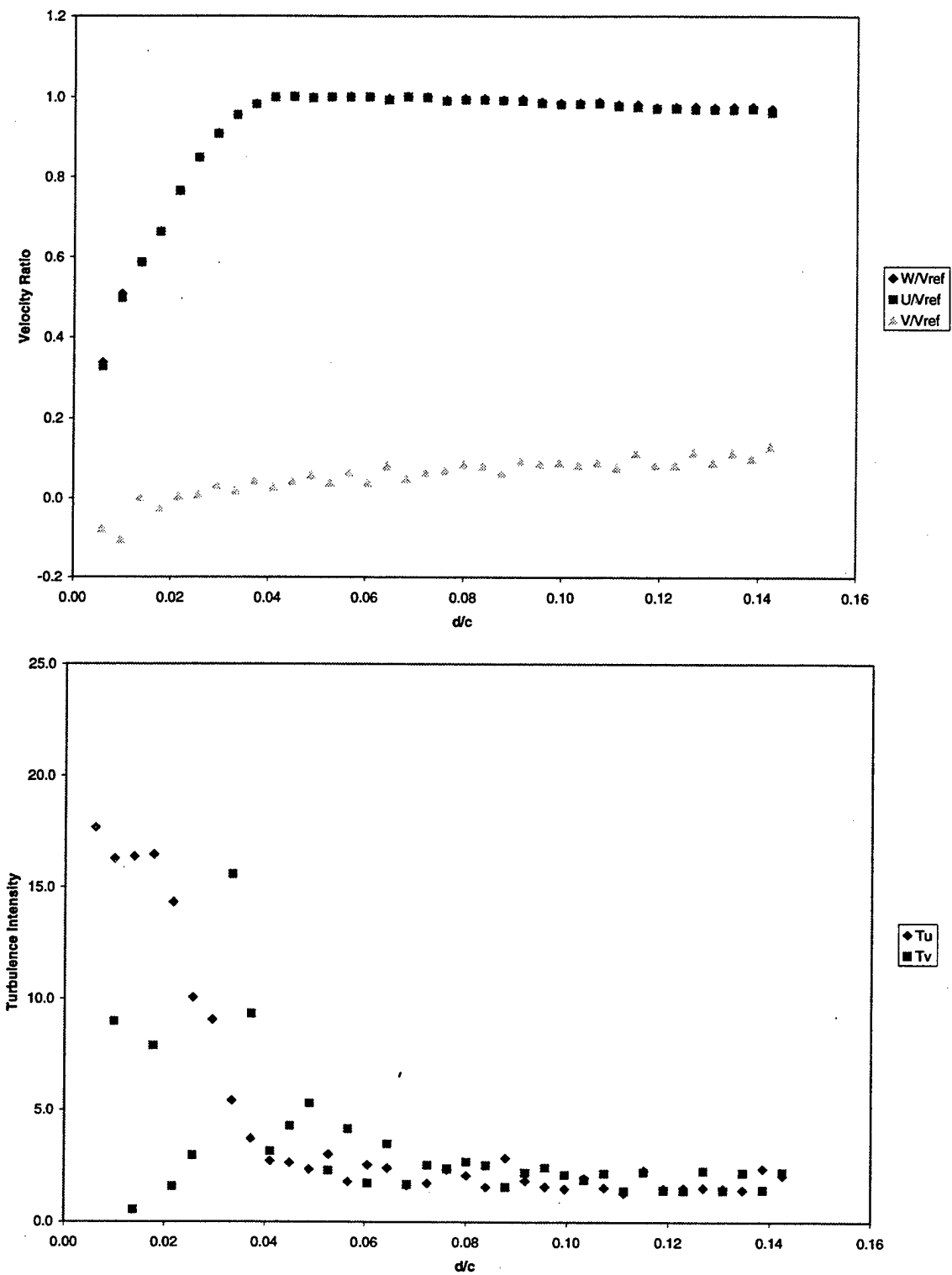
Figure 31. Station 8 Boundary Layer Survey at Re = 210,000

45
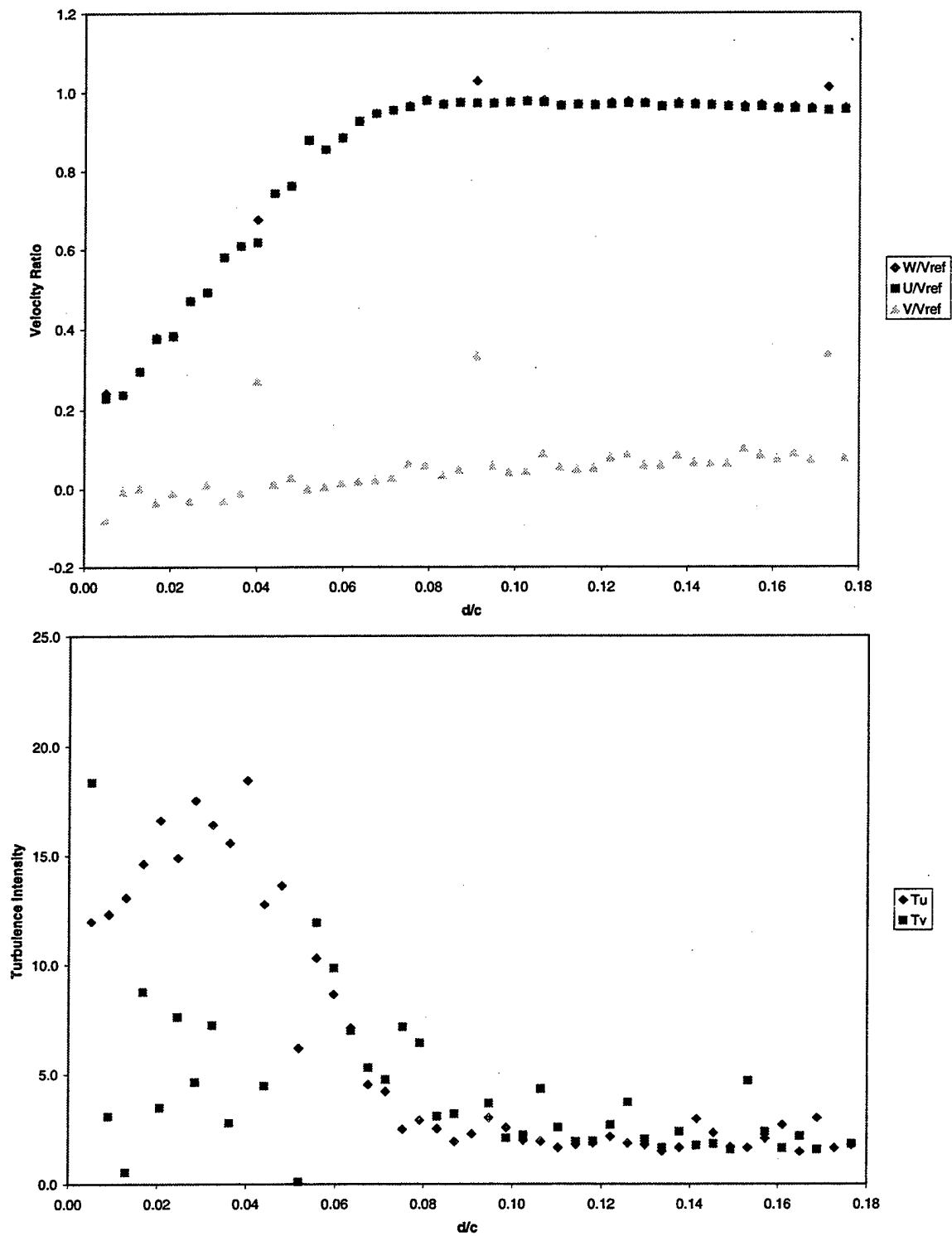
Figure 32. Station 9 Boundary Layer Survey at Re = 210,000

46

V. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

Second-generation controlled-diffusion compressor blade sections, which modeled the midspan section of NASA's stator 67B, were investigated in the LSCWT. The objective of the study was the characterization of the flow around the blades after the replacement of the tunnel motor. Comparison with previous studies indicated that, without change in the test section geometry, the tunnel flow was not the same as before, and had to be viewed a new flow field with inlet flow angle of 40°. The blades were therefore investigated at the new inlet flow angle, at Reynolds numbers of 640,000, 380,000 and 210,000, using multiple experimental techniques.

Blade surface pressure distributions were measured at midspan at each of the three Reynolds numbers. No indication of separation was found at either the high or intermediate Reynolds number. At the low Reynolds number, a separation bubble was indicated between 45% and 65% of chord.

Surface flow visualization was carried out at the high and low Reynolds numbers and confirmed the findings from the pressure measurements. The visualization at the high Reynolds number indicated a 3-dimensional flow field due to the coalescence of endwall vortices on the trailing edge of the blades. At the low Reynolds number, a midchord separation region could be clearly seen at approximately 35% chord.

The inlet flow was analyzed using both a pressure rake probe and 2-component LDV. The rake probe was used at the high Reynolds number to determine the size and symmetry of the endwall boundary layers. The midspan flow was then further characterized by LDV at all three Reynolds numbers.

The loss coefficients were calculated from five-hole probe surveys in the wake of the blades, and the two-component LDV was used to further characterize the wake flow. Detailed LDV surveys were taken of the boundary layers along the suction surface of the blade at both the high and low Reynolds numbers. The high Reynolds number surveys demonstrated the trailing edge reversed flow seen in the flow visualization. The low

47

Reynolds number survey demonstrated that the separation region was smaller than had been expected from the flow visualization results.

Overall, the investigation showed that very significant changes occurred in the slow structure over the range of Reynolds numbers that can be produced in the LSCWT. It also showed that, at the high diffusion factor that characterized the Gelder cascade, it is questionable whether a quasi-two-dimensional analysis of the midspan section should be expected to reproduce the measured results. The very strong end-wall effects that were observed would likely affect where, and at what Reynolds number, separation occurred at midspan. The size of the closed separation bubble, observed at low Reynolds number, could also be affected. Therefore, future work should be approached from a point of view of providing comprehensive data for comparison with fully three-dimensional viscous flow predictions.

B.   RECOMMENDATIONS

The cascade should be set to the design incidence angle, and the flow mapped at three Reynolds numbers using the three-component LDV system. Changes in flow structure with Reynolds number should be determined first, over the available full range of Reynolds number. Care should be taken to obtain near-symmetry about midspan in the inlet flow, and to characterize the inlet flow in sufficient detail to provide inlet boundary conditions for code calculations. The measurements should be repeated at increasing incidence angels, to provide code validation data for a two-parameter test matrix.

APPENDIX A: TABLES OF SCANIVALVE PORTS AND
CHANNEL ASSIGNMENTS

Scanivalve #1
Blade Pressure Measurements

1	Atmosphere	25	3 Suct. Side
2	Calibration	26	4 Suct. Side
3	Plenum Press	27	5 Suct. Side
4	18 Press Side	28	6 Suct. Side
5	17 Press Side	29	7 Suct. Side
6	16 Press Side	30	8 Suct. Side
7	15 Press Side	31	9 Suct. Side
8	14 Press Side	32	10 Suct. Side
9	13 Press Side	33	11 Suct. Side
10	12 Press Side	34	12 Suct. Side
11	11 Press Side	35	13 Suct. Side
12	10 Press Side	36	14 Suct. Side
13	9 Press Side	37	15 Suct. Side
14	8 Press Side	38	16 Suct. Side
15	7 Press Side	39	17 Suct. Side
16	6 Press Side	40	18 Suct. Side
17	5 Press Side	41	19 Suct. Side
18	4 Press Side	42	20 Suct. Side
19	3 Press Side	43	TE
20	2 Press Side	44	Blade 8, 1 Suct.
21	1 Press Side	45	Blade 8, 2 Suct.
22	LE	46	Blade 8, 3 Suct.
23	1 Suct. Side	47	Blade 8, 4 Suct.
24	2 Suct. Side	48	Blade 8, 5 Suct.

Scanivalve #2
Rake Probe Measurements

1	Atmosphere	25	Rake yaw
2	Calibration	26	Rake total
3	Plenum Press	27	Rake total
4	P Wall Static	28	Rake total
5	Not Used	29	Rake total
6	Not Used	30	Rake total
7	Not Used	31	Rake total
8	Not Used	32	Rake total
9	Not Used	33	Rake total
10	P Prandtl tot	34	Rake total
11	P Prandtl stat	35	Not Used
12	Atmosphere	36	Not Used
13	Calibration	37	Not Used
14	Plen. P (tot)	38	Not Used
15	Rake total	39	Not Used
16	Rake total	40	Not Used
17	Rake total	41	Not Used
18	Rake total	42	Not Used
19	Rake total	43	Not Used
20	Rake total	44	Not Used
21	Rake total	45	Not Used
22	Rake total	46	Not Used
23	Rake static	47	Not Used
24	Rake yaw	48	Not Used

TABLE - A1

TABLE - A2

APPENDIX B: PRESSURE RAKE DATA
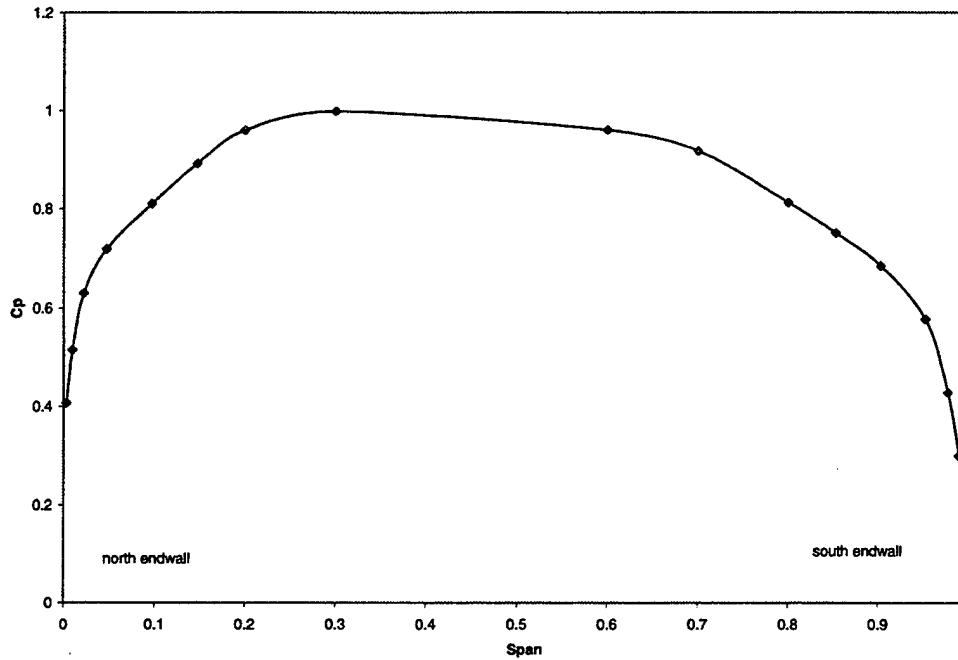
Pressure coefficients were non-dimensionalized using the highest total pressure across the span. Dispacement thickness, momentum thickness and shape factor were calculated at each survey station and averages computed for the blade space.

POSITION	NWDT	MT	SF	SWDT	MT	SF
-16	0.208555262	0.174585624	1.194572933	0.64467533	0.452230147	1.425547002
-15	0.16270673	0.143186375	1.1363283	0.529497984	0.37562083	1.409660863
-14	0.164692449	0.138386108	1.190093802	0.534042609	0.39070989	1.366852037
-13	0.1612758	0.143510015	1.123794743	0.46210009	0.336710895	1.372394233
-12	0.154416167	0.135541375	1.139254833	0.495530098	0.374044803	1.324788084
-11	0.207151293	0.175504667	1.180317859	0.406919074	0.304401062	1.336785985
-10	0.183845091	0.153662851	1.196418584	0.492580706	0.372093164	1.323810149
-9	0.159994538	0.142260988	1.124655048	0.415048674	0.311832653	1.330998114
-8	0.16158355	0.134671161	1.199837809	0.475728612	0.378250616	1.257707436
-7	0.175187864	0.155134967	1.129260975	0.481588324	0.376675665	1.27852253
-6	0.126728345	0.104285189	1.21520944	0.479770884	0.374607134	1.280730772
-5	0.194583016	0.170435362	1.141682183	0.501278025	0.389541399	1.286841467
-4	0.126965459	0.106575655	1.191317649	0.43836309	0.335040682	1.30838765
-3	0.189340692	0.168663873	1.122591862	0.504834694	0.39689027	1.271975486
-2	0.10025384	0.082591507	1.213851679	0.420821069	0.323313321	1.30158902
-1	0.168190235	0.149197066	1.12730256	0.484768412	0.375107279	1.292346055
0	0.117941024	0.09969027	1.183074569	0.473374181	0.355435768	1.331813576
1	0.177450104	0.156720063	1.132274327	0.535477897	0.415452623	1.288902434
2	0.088764635	0.078165668	1.135596188	0.510700683	0.38600321	1.323047761
3	0.178794661	0.155270955	1.151501004	0.524708011	0.389670984	1.346541142
4	0.103501834	0.090712007	1.140993762	0.507873676	0.375081054	1.354037136
5	0.161884631	0.142722685	1.134259989	0.460843591	0.336802725	1.368289377
6	0.113640984	0.101918997	1.115012774	0.432616761	0.324626372	1.332660553
7	0.180668172	0.158980523	1.136417014	0.426918375	0.324504411	1.315601145
8	0.112127881	0.096563069	1.16118804	0.269253167	0.311853482	0.863396379
AVERAGES	0.15520977	0.134357481	1.156672317	0.476372561	0.363460018	1.307729055

APPENDIX C: LDV SUMMARY AND REDUCED DATA

Run	Date	Station	Files	Patm	Tplenum	Pplenum	Shifting	Vtotal
1	4/16/99	1	041699s1	14.7	71.5	11.4	1 Mhz	69.5191
2	4/23/99	1	042399s1	14.62	72	11.2	1 Mhz	69.1353
3	5/7/99	1	0507s1h	14.75	68	11.7	1 Mhz	70.0617
4	5/7/99	3	0507s3h	14.75	67	11.7	1 Mhz	69.9917
5	5/8/99	2	0508s2h	14.71	64	11.9	1 Mhz	70.4371
6	5/8/99	1	0508s1m	14.71	66	4.2	1 Mhz	42.4276
7	5/8/99	3	0508s3m	14.71	68	4.2	1 Mhz	42.5295
8	5/8/99	1	0508s1l	14.71	70	1.6	1 Mhz	26.9097
9	5/20/99	11	0520s11h	14.73	66	12.3	5 Mhz	71.678
10	5/21/99	13	0521s13h	14.67	64	11.9	5 Mhz	70.5313
11	5/21/99	12	0521s12h	14.67	66	11.9	5 Mhz	70.6659
12	5/21/99	12	0521s12m	14.68	66	3.9	10 Mhz	40.9729
13	5/21/99	11	0521s11m	14.66	70	3.8	10 Mhz	40.6602
14	5/21/99	13	0521s13m	14.66	71	3.8	10 Mhz	40.6986
15	5/21/99	13	0521s13l	14.66	71	1.6	10 Mhz	26.9777
16	6/2/99	2	0602s2m	14.69	64	4.2	1 Mhz	42.3748
17	6/2/99	2	0602s2l	14.7	71	1.4	1 Mhz	25.3301
18	6/2/99	3	0602s3l	14.7	72	1.5	1 Mhz	26.1753
19	6/2/99	11	0602s11l	14.71	73	1.5	10 Mhz	26.1984
20	6/2/99	12	0602s12l	14.71	73	1.5	10 Mhz	26.1984
21	6/9/99	9bl	0609s9h	14.71	67	12.1	5 Mhz	71.2507
22	6/10/99	8bl	0610s8h	14.71	68	12.2	5 Mhz	71.6094
23	6/11/99	7bl	0611s7l	14.74	69	1.5	10 Mhz	26.0683
24	6/11/99	6bl	0611s6l	14.73	69	1.5	10 Mhz	26.0795
25	7/9/99	7bl	0709s7h	14.74	68	12.5	2Mhz	72.3965
26	7/9/99	6bl	0709s6h	14.74	70	12.5	1Mhz	72.5336
27	7/9/99	5bl	0709s5h	14.74	70	12.1	1Mhz	71.3851
28	7/13/99	9bl	0713s9l	14.63	75	1.6	10 Mhz	27.106
29	7/13/99	8bl	0713s8l	14.62	80	1.5	10 Mhz	26.4378
30	7/13/99	5bl	0713s5l	14.6	79	1.5	10 Mhz	26.4301
31	8/4/99	7bl	0804s7l	14.71	70	1.5	10Mhz	26.0929
32	8/4/99	7.25bl	0804s725	14.7	74	1.6	10 Mhz	27.2676
33	8/4/99	7.5bl	0804s75l	14.7	76	1.6	10 Mhz	27.318
34	8/13/99	7.75bl	0813s775	14.73	76	1.5	10 Mhz	26.492

Station 1 inlet survey   041699s1
Vref=   70.0617 m/s
Blade Spacing =   152.44 mm

x(mm)	z(mm)	x/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
-50.8	-36.574	-0.333333	1.031888	0.795557	0.657178	1.636962	1.846597	0.257522	0.12626
-44.45	-36.574	-0.291667	1.026626	0.787223	0.658971	1.565998	1.808079	0.285516	0.164284
-38.1	-36.574	-0.250000	1.017660	0.776597	0.657670	1.442451	1.723634	0.37113	0.228122
-31.75	-36.574	-0.208333	1.008733	0.765017	0.657488	1.442486	1.679633	0.32592	0.217173
-25.4	-36.574	-0.166667	1.003592	0.755392	0.660741	1.378901	1.573884	0.26717	0.198063
-19.05	-36.574	-0.125000	1.004999	0.750330	0.668600	1.43085	1.56266	0.230302	0.160704
-12.7	-36.574	-0.083333	1.006863	0.746001	0.676207	1.518723	1.49675	0.168582	0.11786
-6.35	-36.574	-0.041667	1.015623	0.747475	0.687582	1.705761	1.466262	0.296693	0.193805
0	-36.574	0.000000	1.028732	0.753691	0.700173	1.66996	1.596241	0.151595	0.0796019
6.35	-36.574	0.041667	1.037834	0.759397	0.707401	1.644657	1.485875	0.211585	0.136278
12.7	-36.574	0.083333	1.052443	0.772330	0.714942	1.527546	1.58993	0.15642	0.0888293
19.05	-36.574	0.125000	1.057927	0.780685	0.713962	1.479038	1.652044	0.167745	0.11145
25.4	-36.574	0.166667	1.061100	0.789628	0.708815	1.445421	1.517517	0.228689	0.165649
31.75	-36.574	0.208333	1.066898	0.800358	0.705477	1.450586	1.485952	0.268029	0.190129
38.1	-36.574	0.250000	1.063093	0.804436	0.695018	1.513829	1.477211	0.186796	0.131723
44.45	-36.574	0.291667	1.066222	0.812299	0.690652	1.657439	1.637156	0.420063	0.227527
50.8	-36.574	0.333333	1.067809	0.817958	0.686411	1.653895	1.572459	0.339466	0.196157
57.15	-36.574	0.375000	1.066091	0.822019	0.678849	1.639467	1.606966	0.293401	0.184188
63.5	-36.574	0.416667	1.056212	0.816682	0.669787	1.58237	1.535099	0.27246	0.169605
69.85	-36.574	0.458333	1.051317	0.816144	0.662703	1.393215	1.460067	0.220139	0.172477
76.2	-36.574	0.500000	1.043027	0.811659	0.655067	1.449452	1.467626	0.183211	0.138922
82.55	-36.574	0.541667	1.036193	0.806980	0.649985	1.481365	1.492652	0.161572	0.116313
88.9	-36.574	0.583333	1.032411	0.806906	0.644032	1.674984	1.480848	0.287963	0.182417
95.25	-36.574	0.625000	1.023506	0.797763	0.641198	1.804445	1.524057	0.406065	0.246388
101.6	-36.574	0.666667	1.022192	0.794354	0.643333	1.849217	1.668489	0.434278	0.228621
107.95	-36.574	0.708333	1.015754	0.785181	0.644396	1.603011	1.641282	0.405739	0.246903
114.3	-36.574	0.750000	1.011581	0.777831	0.646742	1.490565	1.602975	0.330193	0.226108
120.65	-36.574	0.791667	1.003921	0.768101	0.646434	1.358871	1.524226	0.231828	0.175093
127	-36.574	0.833333	1.000055	0.758327	0.651959	1.441564	1.597873	0.17932	0.124391
133.35	-36.574	0.875000	1.005516	0.756139	0.662811	1.404755	1.504925	0.239283	0.175822
139.7	-36.574	0.916667	1.002245	0.748381	0.666650	1.461993	1.517942	0.0967765	0.068765
146.05	-36.574	0.958333	1.012884	0.751565	0.679031	1.521415	1.527126	0.20511	0.135021
152.4	-36.574	1.000000	1.024006	0.756159	0.690517	1.582618	1.580669	0.293846	0.184822
158.75	-36.574	1.041667	1.033569	0.762311	0.697959	1.751761	1.548876	0.211405	0.124681
165.1	-36.574	1.083333	1.050592	0.777546	0.706517	1.525468	1.527432	0.182942	0.12056
171.45	-36.574	1.125000	1.056488	0.784131	0.708028	1.414934	1.504907	0.247864	0.185591
177.8	-36.574	1.166667	1.066737	0.796808	0.709242	1.355132	1.450734	0.124907	0.0997932
184.15	-36.574	1.208333	1.069800	0.806646	0.702703	1.419358	1.398148	0.188259	0.151075
190.5	-36.574	1.250000	1.071659	0.815088	0.695761	1.445689	1.540596	0.0930366	0.0662892
196.85	-36.574	1.291667	1.071835	0.819864	0.690400	1.67549	1.490705	0.223115	0.135264
203.2	-36.574	1.333333	1.071599	0.825852	0.682857	1.651465	1.489311	0.235589	0.155844

Station 1 inlet survey   042399s1
Vref=   69.1352 m/s
Blade Spacing =   152.44 mm

x(mm)	z(mm)	x/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
231.300	-36.574	1.517717	1.038943	0.813277	0.646514	2.030120	2.606570	0.086581	0.065106
-76.200	-36.574	-0.500000	1.044777	0.809951	0.659955	2.047470	2.793500	0.203052	0.138954
-68.700	-36.574	-0.450787	1.035717	0.802789	0.654399	2.449910	2.782640	0.339068	0.198078
-61.200	-36.574	-0.401575	1.036261	0.802257	0.655912	2.562140	2.647400	0.357640	0.209636
-53.700	-36.574	-0.352362	1.033193	0.797200	0.657237	2.459290	2.799570	0.316251	0.183419
-46.200	-36.574	-0.303150	1.025871	0.789145	0.655487	2.154660	3.145940	0.478008	0.285224
-38.700	-36.574	-0.253937	1.012513	0.773804	0.653000	2.196040	3.324570	0.372333	0.211160
-31.200	-36.574	-0.204724	0.999693	0.760271	0.649132	2.050060	2.896480	0.216306	0.154430
-23.700	-36.574	-0.155512	0.997859	0.752621	0.655199	2.198030	2.641170	0.136393	0.099682
-16.200	-36.574	-0.106299	1.001001	0.747998	0.665208	2.357820	2.701610	0.265950	0.175555
-8.700	-36.574	-0.057087	1.010573	0.750046	0.677266	2.548530	2.579020	0.242581	0.152008
-1.200	-36.574	-0.007874	1.027169	0.756043	0.695322	2.482110	2.613200	0.170361	0.104531
6.300	-36.574	0.041339	1.033656	0.760484	0.700078	2.186600	2.627700	0.206138	0.140987
13.800	-36.574	0.090551	1.046745	0.771504	0.707428	2.071560	2.635920	0.202400	0.142089
21.300	-36.574	0.139764	1.051680	0.779580	0.705894	2.027060	2.437750	0.133549	0.102751
28.800	-36.574	0.188976	1.056965	0.793127	0.698659	2.203570	2.344200	0.139609	0.102043
36.300	-36.574	0.238189	1.057859	0.801542	0.690359	2.192380	2.703490	0.180882	0.115387
43.800	-36.574	0.287402	1.065858	0.813179	0.689053	2.247360	2.503490	0.216311	0.143557
51.300	-36.574	0.336614	1.065770	0.820528	0.680147	2.021440	2.608720	0.302517	0.215064
58.800	-36.574	0.385827	1.057966	0.818927	0.669812	2.013480	2.687500	0.349391	0.246273
66.300	-36.574	0.435039	1.046458	0.812849	0.659055	1.939270	2.591990	0.209967	0.163136
73.800	-36.574	0.484252	1.039838	0.809671	0.652452	2.060940	2.634250	0.196986	0.143701
81.300	-36.574	0.533465	1.034501	0.808235	0.645714	2.145530	2.793170	0.284772	0.190497
88.800	-36.574	0.582677	1.032273	0.810698	0.639026	2.261510	2.574480	0.311539	0.216097
96.300	-36.574	0.631890	1.026124	0.802399	0.639599	2.325270	2.714180	0.275073	0.177681
103.800	-36.574	0.681102	1.019881	0.794077	0.639998	2.161170	2.780620	0.389819	0.267050
111.300	-36.574	0.730315	1.012523	0.782980	0.641984	2.094600	2.871560	0.346839	0.240014
118.800	-36.574	0.779528	1.002410	0.769109	0.642881	2.141620	2.976380	0.405234	0.269003
126.300	-36.574	0.828740	0.994705	0.759260	0.642619	2.163220	2.725790	0.130402	0.094830
133.800	-36.574	0.877953	0.996792	0.753338	0.652744	2.259590	2.537640	0.163503	0.121321
141.300	-36.574	0.927165	1.000301	0.749398	0.662573	2.325850	2.541420	0.304433	0.217013
148.800	-36.574	0.976378	1.013365	0.752395	0.678831	2.531870	2.693210	0.391858	0.235403
156.300	-36.574	1.025591	1.025903	0.758909	0.690314	2.428840	2.418730	0.261752	0.177938
163.800	-36.574	1.074803	1.039874	0.769842	0.699058	2.272170	2.526810	0.265926	0.180067
171.300	-36.574	1.124016	1.051388	0.780759	0.704154	2.066050	2.361220	0.209713	0.163594
178.800	-36.574	1.173228	1.060596	0.793989	0.703166	2.002890	2.262570	0.141943	0.117378
186.300	-36.574	1.222441	1.062634	0.806188	0.692280	2.014580	2.619090	0.150047	0.106605
193.800	-36.574	1.271654	1.067767	0.816065	0.688597	2.127230	2.476560	0.238788	0.168757
201.300	-36.574	1.320866	1.067199	0.825199	0.676726	2.005180	2.478540	0.182720	0.137742
208.800	-36.574	1.370079	1.057402	0.822286	0.664790	1.990700	2.767440	0.330374	0.229518
216.300	-36.574	1.419291	1.054123	0.823239	0.658369	1.916930	2.726600	0.229127	0.169221
223.800	-36.574	1.468504	1.042287	0.815172	0.649503	2.012840	2.493490	0.210852	0.166009

Station 1 inlet survey   0507s1h

Vref=   70.0617 m/s

Blade Spacing =   152.44 mm

x(mm)	z(mm)	x/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
-76.200	-36.576	-0.499869	1.030258	0.802339	0.646285	1.780229	1.631610	0.077619	0.029810
-68.700	-35.576	-0.450669	1.024017	0.797910	0.641836	1.859544	1.390094	0.169296	0.070869
-61.200	-35.576	-0.401469	1.023080	0.795467	0.643370	1.800429	1.424003	0.093336	0.024068
-53.700	-35.576	-0.352270	1.013621	0.784080	0.642374	1.687858	1.727311	0.114707	0.015032
-46.200	-35.576	-0.303070	1.005418	0.777783	0.637118	1.588178	1.832869	0.394733	0.086408
-38.700	-35.576	-0.253870	0.996479	0.767158	0.635954	1.455813	1.689303	0.320928	0.099172
-31.200	-35.576	-0.204671	0.987114	0.754702	0.636253	1.420100	1.582095	0.250746	0.073621
-23.700	-35.576	-0.155471	0.981201	0.743034	0.640825	1.481557	1.529880	0.188378	0.065488
-16.200	-35.576	-0.106271	0.982023	0.736781	0.649248	1.636758	1.378366	0.196481	0.060387
-8.700	-35.576	-0.057072	0.991418	0.735757	0.664507	1.881434	1.444047	0.048236	0.015222
-1.200	-35.576	-0.007872	1.007306	0.742129	0.681111	1.837103	1.524361	0.160487	0.062297
6.300	-35.576	0.041328	1.017709	0.748760	0.689268	1.499205	1.537606	0.325142	0.080043
13.800	-35.576	0.090527	1.032145	0.759685	0.698714	1.534609	1.626655	0.170890	0.038716
21.300	-35.576	0.139727	1.037119	0.769530	0.695297	1.444693	1.462919	0.269804	0.059350
28.800	-35.576	0.188927	1.039985	0.777662	0.690516	1.507458	1.389449	0.085685	0.022586
36.300	-35.576	0.238126	1.043249	0.788461	0.683154	1.589844	1.474375	0.210837	0.056962
43.800	-35.576	0.287326	1.044191	0.795308	0.676625	1.982248	1.607587	0.245653	0.066177
51.300	-35.576	0.336526	1.043513	0.802760	0.666705	1.714606	1.511574	-0.001459	-0.000298
58.800	-35.576	0.385726	1.034273	0.801218	0.654039	1.469923	1.480921	0.078394	0.018886
66.300	-35.576	0.434925	1.031512	0.801217	0.649669	1.486417	1.496584	0.319734	0.071538
73.800	-35.576	0.484125	1.026508	0.799608	0.643695	1.435936	1.343174	0.108730	0.050804
81.300	-35.576	0.533325	1.015031	0.790896	0.636216	1.589052	1.401591	0.597618	0.088775
88.800	-35.576	0.582524	1.011381	0.793653	0.626905	1.611537	1.513498	0.362806	0.141474
96.300	-35.576	0.631724	1.010361	0.789777	0.630145	1.810682	1.377767	0.387693	0.104008
103.800	-35.576	0.680924	1.004961	0.781244	0.632144	1.907150	1.493017	0.149791	0.041492
111.300	-35.576	0.730123	0.999018	0.772413	0.633573	1.542216	1.568847	0.445600	0.116588
118.800	-35.576	0.779323	0.988277	0.759412	0.632444	1.318886	1.406094	0.422409	0.076968
126.300	-35.576	0.828523	0.986422	0.752515	0.637769	1.434422	1.514402	0.125803	0.037675
133.800	-35.576	0.877722	0.983353	0.745590	0.641155	1.496608	1.421703	0.058903	0.015566
141.300	-35.576	0.926922	0.993045	0.746583	0.654791	1.620362	1.479534	0.533260	0.126083
148.800	-35.576	0.976122	0.999796	0.745162	0.666578	1.889134	1.430670	0.229639	0.075676
156.300	-35.576	1.025321	1.015015	0.752514	0.681160	1.702984	1.445925	0.239913	0.069058
163.800	-35.576	1.074521	1.030760	0.763932	0.692007	1.732431	1.482501	0.267010	0.100440
171.300	-35.576	1.123721	1.040310	0.773998	0.695106	1.484288	1.489946	-0.020531	-0.004449
178.800	-35.576	1.172920	1.049936	0.791587	0.689751	1.472620	1.456946	-0.013737	-0.004265
186.300	-35.576	1.222120	1.052648	0.797620	0.686927	1.485032	1.415139	0.079668	0.018882
193.800	-35.576	1.271320	1.054117	0.809005	0.675774	1.590278	1.283573	-0.100169	-0.029075
201.300	-35.576	1.320520	1.056089	0.814932	0.671721	1.657832	1.438195	0.319942	0.069672
208.800	-35.576	1.369719	1.050358	0.815427	0.662066	1.760947	1.582597	0.118313	0.030925
216.300	-35.576	1.418919	1.041197	0.812121	0.651574	1.494839	1.581371	0.164298	0.037679
223.800	-35.576	1.468119	1.030990	0.806832	0.641841	1.502183	1.440510	0.175134	0.037190
231.300	-35.576	1.517318	1.020515	0.799121	0.634708	1.720372	1.376579	0.210203	0.060134

Station 3 inlet survey   0507s3h
Vref=   69.9917 m/s
Blade Spacing =   152.44 mm

x(mm)	z(mm)	x/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
-76.200	-6.096	-0.499869	1.053009	0.848383	0.623757	1.636854	1.746120	0.289825	0.045913
-72.200	-6.096	-0.473629	1.038123	0.838642	0.611864	1.612759	1.626114	0.147036	0.030678
-68.200	-6.096	-0.447389	1.028591	0.832327	0.604343	1.429023	1.476978	0.096498	0.046246
-64.199	-6.096	-0.421143	1.014747	0.818136	0.600307	1.550612	1.606619	0.132991	0.026000
-60.200	-6.096	-0.394909	1.005694	0.812908	0.592116	1.430596	1.398341	0.137179	0.050503
-56.200	-6.096	-0.368670	0.999323	0.804384	0.592970	1.498221	1.645949	0.396555	0.060811
-52.200	-6.096	-0.342430	0.983192	0.789529	0.585928	1.612148	1.676393	-0.246321	-0.040559
-48.200	-6.096	-0.316190	0.981216	0.788815	0.583571	1.768641	1.416425	0.121618	0.033277
-44.200	-6.096	-0.289950	0.971972	0.777029	0.583915	1.895338	1.497859	-0.094280	-0.017224
-40.200	-6.096	-0.263710	0.973771	0.776678	0.587370	1.709033	1.531367	0.333310	0.115710
-36.200	-6.096	-0.237470	0.960351	0.760764	0.586099	1.761801	1.521708	0.232024	0.053316
-32.200	-6.096	-0.211231	0.954753	0.750252	0.590489	1.684255	1.585509	0.303823	0.066213
-28.200	-6.096	-0.184991	0.945812	0.736280	0.593676	1.611806	1.687055	0.474768	0.096422
-24.200	-6.096	-0.158751	0.935728	0.721944	0.595301	1.456060	1.684677	0.185034	0.090222
-20.200	-6.096	-0.132511	0.921053	0.700775	0.597707	1.819533	1.804351	0.534881	0.162218
-16.200	-6.096	-0.106271	0.910512	0.680168	0.605313	1.460565	1.673243	0.192972	0.042746
-12.200	-6.096	-0.080031	0.896411	0.653622	0.613458	1.474355	1.539357	0.220723	0.104778
-8.200	-6.096	-0.053792	0.889833	0.628785	0.629629	1.501273	1.494947	0.274283	0.083724
-4.200	-6.096	-0.027552	0.890588	0.595806	0.661938	1.621678	1.482365	0.073818	0.018087
-0.200	-6.096	-0.001312	0.926306	0.571378	0.729088	1.585528	1.624131	0.315975	0.051626
11.800	-6.096	0.077408	1.138562	0.755604	0.851697	1.647980	1.552413	0.176386	0.038375
15.800	-6.096	0.103647	1.157264	0.797967	0.838159	1.628436	1.516339	0.090372	0.013300
19.800	-6.096	0.129887	1.165377	0.829164	0.818896	1.744818	1.513467	0.031416	0.004436
23.800	-6.096	0.156127	1.162568	0.849858	0.793287	1.656458	1.490451	0.743358	0.083839
27.800	-6.096	0.182367	1.162165	0.865384	0.775718	1.640007	1.312111	0.528713	0.116937
31.800	-6.096	0.208607	1.160433	0.878567	0.758107	1.493661	1.456885	0.232131	0.056142
35.800	-6.096	0.234846	1.145549	0.877694	0.736164	1.517515	1.582356	0.170437	0.022149
39.800	-6.096	0.261086	1.130421	0.876610	0.713727	1.799276	1.737520	0.165698	0.034867
43.800	-6.096	0.287326	1.127664	0.882978	0.701409	1.453037	1.611655	0.159376	0.027151
47.800	-6.096	0.313566	1.113914	0.878051	0.685441	1.444026	1.460223	0.015903	0.002906
51.800	-6.096	0.339806	1.096084	0.870805	0.665657	1.389055	1.525015	0.311938	0.053363
55.800	-6.096	0.366046	1.089673	0.868829	0.657665	2.028889	1.580257	0.242505	0.042367
59.800	-6.096	0.392285	1.078212	0.865155	0.643463	1.697046	1.342451	0.243094	0.046778
63.800	-6.096	0.418525	1.073379	0.867141	0.632619	1.507456	1.417010	0.092301	0.032745
67.800	-6.096	0.444765	1.061879	0.859788	0.623178	2.045383	1.434213	0.509661	0.136599
71.800	-6.096	0.471005	1.047637	0.848806	0.614061	1.704166	1.445715	0.184937	0.032931
75.800	-6.096	0.497245	1.039758	0.844349	0.606772	1.630319	1.456059	0.461836	0.098860
79.800	-6.096	0.523485	1.031708	0.838314	0.601376	1.633857	1.476822	0.351393	0.067837

83.800	-6.096	0.549724	1.016459	0.826439	0.591767	1.698407	1.601583	0.074179	0.021972
87.800	-6.096	0.575964	1.005999	0.816907	0.587111	1.415740	1.452759	0.219763	0.042311
91.800	-6.096	0.602204	0.994094	0.806450	0.581257	1.752682	1.486630	0.180878	0.050272
95.800	-6.096	0.628444	0.986726	0.800865	0.576407	1.525912	1.406537	0.252293	0.071891
99.800	-6.096	0.654684	0.975937	0.789012	0.574380	1.420159	1.416328	0.038043	0.009728
103.800	-6.096	0.680924	0.965332	0.780538	0.568000	1.441717	1.551595	0.167595	0.036733
107.800	-6.096	0.707163	0.958244	0.770501	0.569700	1.462712	1.477712	-0.062957	-0.011968
111.800	-6.096	0.733403	0.948442	0.762516	0.564015	1.575259	1.323073	0.352202	0.171079
115.800	-6.096	0.759643	0.944989	0.755484	0.567672	2.105458	1.532322	0.407662	0.152009
119.800	-6.096	0.785883	0.937240	0.743921	0.570088	1.823663	1.524608	0.491247	0.280247
123.800	-6.096	0.812123	0.927134	0.729831	0.571774	1.853230	1.465901	0.356589	0.185336
127.800	-6.096	0.838363	0.920436	0.717634	0.576371	1.930004	1.478796	0.531726	0.214072
131.800	-6.096	0.864602	0.910761	0.699330	0.583459	1.684910	1.499146	0.321747	0.094796
135.800	-6.096	0.890842	0.907842	0.685574	0.595118	1.413215	1.530470	0.257128	0.064613
139.800	-6.096	0.917082	0.891743	0.659282	0.600460	1.731652	1.544082	0.462266	0.174792
143.800	-6.096	0.943322	0.884328	0.635055	0.615419	1.474725	1.553926	0.093455	0.021664
147.800	-6.096	0.969562	0.878076	0.599421	0.641648	1.513628	1.457130	0.143191	0.045433
151.800	-6.096	0.995802	0.904151	0.571016	0.701022	1.622800	1.527484	-0.038022	-0.006972
155.800	-6.096	1.022041	0.962660	0.553026	0.787956	4.686836	1.317786	-0.432382	-0.039091
159.800	-6.096	1.048281	0.541066	0.538861	-0.048785	4.590018	-0.001581	0.002060	0.579562
163.800	-6.096	1.074521	1.117941	0.736290	0.841231	1.440993	1.559012	0.082615	0.017800
167.800	-6.096	1.100761	1.135912	0.780115	0.825659	1.568414	1.501073	0.240750	0.037666
171.800	-6.096	1.127001	1.144427	0.811993	0.806461	1.612733	1.476534	0.971100	0.115403
175.800	-6.096	1.153241	1.146492	0.838348	0.782060	1.560375	1.448273	0.099090	0.023559
179.800	-6.096	1.179480	1.146449	0.852663	0.766362	1.702111	1.365550	0.136272	0.049698
183.800	-6.096	1.205720	1.139664	0.861892	0.745638	1.608265	1.457231	0.951039	0.130049
187.800	-6.096	1.231960	1.130934	0.870117	0.722433	1.496245	1.506402	0.178797	0.030020
191.800	-6.096	1.258200	1.127992	0.878207	0.707898	1.432540	1.420454	0.591868	0.086427
195.800	-6.096	1.284440	1.117587	0.877078	0.692629	1.331256	1.388708	0.091781	0.028194
199.800	-6.096	1.310680	1.112468	0.881322	0.678865	1.340640	1.387824	0.456000	0.146383
203.800	-6.096	1.336919	1.095977	0.872855	0.662789	1.509000	1.386852	0.017121	0.003015
207.800	-6.096	1.363159	1.087738	0.871809	0.650479	1.417884	1.409971	-0.050358	-0.009061
211.800	-6.096	1.389399	1.076552	0.869885	0.634244	1.529048	1.399135	0.365794	0.074179
215.800	-6.096	1.415639	1.074793	0.872239	0.627997	1.602042	1.352976	0.247286	0.078327
219.800	-6.096	1.441879	1.059013	0.860469	0.617335	1.711783	1.328300	0.109685	0.023878
223.800	-6.096	1.468119	1.052411	0.857557	0.610052	1.714103	1.461051	0.230221	0.114747

58

Station 2 Inlet survey   0508s2h
Vref=   70.4371 m/s
Blade Spacing =   152.44 mm

x(mm)	z(mm)	x/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
-76.200	-18.288	-0.499869	1.047336	0.825485	0.644582	1.614113	1.562119	0.430688	0.069207
-71.200	-18.288	-0.467069	1.042259	0.822082	0.640691	1.636413	1.615246	0.063861	0.011541
-66.200	-18.288	-0.434269	1.031405	0.815083	0.632011	1.575034	1.595163	0.257578	0.055330
-61.200	-18.288	-0.401469	1.014419	0.801484	0.621829	1.870784	1.543254	0.247066	0.065268
-56.200	-18.288	-0.368670	1.005985	0.794523	0.617040	2.097199	1.526156	0.102833	0.029085
-51.200	-18.288	-0.335870	1.001542	0.788004	0.618171	1.835537	1.532200	0.351145	0.110724
-46.200	-18.288	-0.303070	0.990880	0.774852	0.617613	1.851926	1.400408	0.319844	0.075285
-41.200	-18.288	-0.270270	0.992720	0.774079	0.621526	1.702858	1.494099	0.132078	0.024211
-36.200	-18.288	-0.237470	0.986352	0.764792	0.622885	1.521369	1.620865	0.190078	0.078795
-31.200	-18.288	-0.204671	0.978446	0.751864	0.626144	1.507472	1.782458	0.318835	0.073946
-26.200	-18.288	-0.171871	0.966036	0.737529	0.623920	1.547675	1.623277	0.325412	0.082170
-21.200	-18.288	-0.139071	0.957921	0.718756	0.633246	1.635896	1.645350	0.180327	0.060418
-16.200	-18.288	-0.106271	0.956381	0.707921	0.643049	1.471470	1.488433	0.114317	0.033387
-11.200	-18.288	-0.073472	0.957545	0.698118	0.655380	1.438591	1.553140	0.180007	0.080660
-6.200	-18.288	-0.040672	0.968448	0.691080	0.678454	1.522692	1.419501	0.027928	0.009939
-1.200	-18.288	-0.007872	0.988133	0.694391	0.703013	1.566963	1.535240	0.568068	0.124103
3.800	-18.288	0.024928	1.016919	0.707242	0.730706	1.525409	1.335511	0.145864	0.043297
8.800	-18.288	0.057728	1.047401	0.733136	0.748039	1.924373	1.428261	0.231782	0.075839
13.800	-18.288	0.090527	1.082975	0.771229	0.760290	1.696518	1.488366	-0.030985	-0.006715
18.800	-18.288	0.123327	1.096840	0.791488	0.759344	1.584289	1.553504	0.249028	0.041706
23.800	-18.288	0.156127	1.104872	0.811525	0.749778	1.400506	1.703593	0.383963	0.123832
28.800	-18.288	0.188927	1.106356	0.822088	0.740401	1.783578	1.647962	0.265348	0.063645
33.800	-18.288	0.221727	1.103509	0.830121	0.727071	1.739975	1.555969	0.405154	0.087997
38.800	-18.288	0.254526	1.100636	0.838077	0.713461	1.434184	1.559411	0.139111	0.022691
43.800	-18.288	0.287326	1.095729	0.843621	0.699232	1.466989	1.461871	0.241530	0.035110
48.800	-18.288	0.320126	1.087843	0.845191	0.684876	1.579028	1.451095	0.318934	0.052564
53.800	-18.288	0.352926	1.082157	0.845908	0.674910	1.699640	1.509092	0.182225	0.028327
58.800	-18.288	0.385726	1.082986	0.855098	0.664582	1.574389	1.390777	0.312714	0.139178
63.800	-18.288	0.418525	1.073392	0.850173	0.655268	1.638971	1.616324	0.347540	0.061127
68.800	-18.288	0.451325	1.062923	0.843228	0.647128	1.589973	1.637634	-0.249119	-0.039346
73.800	-18.288	0.484125	1.054463	0.840989	0.636105	1.484992	1.589487	0.402646	0.130268
78.800	-18.288	0.516925	1.038815	0.827561	0.627915	1.457302	1.551364	0.422565	0.073521
83.800	-18.288	0.549724	1.031500	0.822940	0.621902	1.782809	1.484525	0.007593	0.002247
88.800	-18.288	0.582524	1.018903	0.813793	0.613112	1.401839	1.426471	0.047090	0.013765
93.800	-18.288	0.615324	1.010054	0.805550	0.609342	1.525494	1.477752	0.027463	0.007388
98.800	-18.288	0.648124	1.004861	0.799647	0.608532	1.645689	1.463044	0.256700	0.047591
103.800	-18.288	0.680924	0.997873	0.791814	0.607275	1.763267	1.505259	0.346029	0.069789
108.800	-18.288	0.713723	0.992068	0.782299	0.610088	1.909076	1.423206	0.328215	0.084517

113.800	-18.288	0.746523	0.988242	0.775837	0.612128	1.834668	1.338644	0.123276	0.035099
118.800	-18.288	0.779323	0.987133	0.769802	0.617930	1.579310	1.548922	0.352327	0.088848
123.800	-18.288	0.812123	0.980479	0.756569	0.623653	1.524183	1.567352	0.241177	0.054878
128.800	-18.288	0.844923	0.971799	0.742834	0.626570	1.411385	1.562159	0.257413	0.090052
133.800	-18.288	0.877722	0.966709	0.728862	0.635049	1.427279	1.526543	0.198672	0.051265
138.800	-18.288	0.910522	0.963458	0.714175	0.646688	1.482505	1.415651	-0.057573	-0.022929
143.800	-18.288	0.943322	0.963502	0.704296	0.657497	1.496383	1.469296	0.217119	0.049167
148.800	-18.288	0.976122	0.979688	0.703368	0.681955	1.539975	1.430161	0.147030	0.035895
153.800	-18.288	1.008922	1.000804	0.708206	0.707143	1.828525	1.411832	0.115525	0.043164
158.800	-18.288	1.041721	1.033418	0.730131	0.731343	1.670751	1.583746	0.113632	0.026397
163.800	-18.288	1.074521	1.061898	0.756306	0.745405	1.732879	1.430649	0.543190	0.092658
168.800	-18.288	1.107321	1.081129	0.777565	0.751155	1.906433	1.419804	0.208459	0.068711
173.800	-18.288	1.140121	1.096005	0.799366	0.749828	1.821299	1.398766	0.198429	0.056814
178.800	-18.288	1.172920	1.108004	0.821637	0.743361	1.548103	1.411011	0.544879	0.085582
183.800	-18.288	1.205720	1.099820	0.825106	0.727188	1.546604	1.515605	0.782592	0.078644
188.800	-18.288	1.238520	1.104150	0.838964	0.717835	1.519800	1.420021	0.344837	0.055273
193.800	-18.288	1.271320	1.103636	0.849513	0.704514	1.286298	1.433594	0.069022	0.021848
198.800	-18.288	1.304120	1.095881	0.850961	0.690522	1.560636	1.461470	0.330156	0.039438
203.800	-18.288	1.336919	1.085651	0.851839	0.673060	1.559105	1.367254	-0.051147	-0.006775
208.800	-18.288	1.369719	1.082404	0.852663	0.666758	1.805889	1.447772	0.054917	0.012215
213.800	-18.288	1.402519	1.073020	0.847911	0.657585	1.681136	1.429511	0.313835	0.051569
218.800	-18.288	1.435319	1.068746	0.848919	0.649273	1.655324	1.445275	-0.088027	-0.016235
223.800	-18.288	1.468119	1.060386	0.845228	0.640320	1.651770	1.580016	0.322820	0.131496

Station 1 inlet survey   0508s1m
Vref=   42.4276 m/s
Blade Spacing =   152.44 mm

x(mm)	z(mm)	x/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
-76.200	-36.576	-0.499869	1.052553	0.819917	0.660002	1.715372	1.472220	0.105731	0.030962
-68.700	-36.576	-0.450669	1.039967	0.801205	0.663028	1.778843	1.581521	0.727669	0.078704
-61.200	-36.576	-0.401469	1.040415	0.800203	0.664933	2.030452	1.553702	0.563852	0.064583
-53.700	-36.576	-0.352270	1.032851	0.792981	0.661789	1.860327	1.576791	0.176719	0.027334
-46.200	-36.576	-0.303070	1.023692	0.787407	0.654169	1.717634	1.539370	0.023234	0.008678
-38.700	-36.576	-0.253870	1.024079	0.779457	0.664219	1.430624	1.562242	0.007750	0.000766
-31.200	-36.576	-0.204671	1.006430	0.758648	0.661327	1.488353	1.565697	0.299850	0.038031
-23.700	-36.576	-0.155471	1.010500	0.759107	0.666983	1.685757	1.500072	1.802590	0.156577
-16.200	-36.576	-0.106271	0.985757	0.729179	0.663335	1.397252	1.597774	0.078676	0.104799
-8.700	-36.576	-0.057072	1.008348	0.736568	0.688646	1.544995	1.511372	0.045642	0.015140
-1.200	-36.576	-0.007872	1.024609	0.745305	0.703097	1.651909	1.603995	0.400009	0.123985
6.300	-36.576	0.041328	1.041530	0.759275	0.712944	1.538769	1.650251	0.181065	0.117118
13.800	-36.576	0.090527	1.056756	0.779471	0.713552	1.691336	1.359581	0.092545	0.036647
21.300	-36.576	0.139727	1.061743	0.789932	0.709444	1.508398	1.468031	-0.045479	-0.023656
28.800	-36.576	0.188927	1.077959	0.802369	0.719859	1.484640	1.816774	0.008410	0.004123
36.300	-36.576	0.238126	1.071133	0.805287	0.706288	1.359139	1.509055	0.167439	0.086893
43.800	-36.576	0.287326	1.073898	0.817095	0.696858	1.657168	1.889934	0.169362	0.074544
51.300	-36.576	0.336526	1.079250	0.834483	0.684415	1.920645	1.483409	-0.008176	-0.003427
58.800	-36.576	0.385726	1.062264	0.821824	0.673060	1.505096	1.516820	0.069975	0.079772
66.300	-36.576	0.434925	1.059268	0.822971	0.666910	1.476460	1.512146	0.067351	0.083891
73.800	-36.576	0.484125	1.053295	0.815945	0.666081	1.403899	1.488011	0.296701	0.117296
81.300	-36.576	0.533325	1.050099	0.824652	0.650122	1.573592	1.376555	0.538483	0.067611
88.800	-36.576	0.582524	1.039373	0.809164	0.652340	1.616913	1.536194	0.185842	0.071087
96.300	-36.576	0.631724	1.030746	0.802867	0.646409	1.836445	1.506974	0.467998	0.070357
103.800	-36.576	0.680924	1.040884	0.805768	0.658922	1.808868	1.643926	0.157027	0.014631
111.300	-36.576	0.730123	1.028078	0.791424	0.656195	1.584161	1.740618	0.611999	0.082091
118.800	-36.576	0.779323	1.019433	0.778965	0.657617	1.604963	1.637643	0.023380	0.004098
126.300	-36.576	0.828523	1.005089	0.751424	0.667509	1.280035	1.885038	0.147403	0.063804
133.800	-36.576	0.877722	1.008075	0.751292	0.672143	1.410092	1.563437	0.259685	0.073910
141.300	-36.576	0.926922	1.010206	0.750606	0.676095	1.572324	1.505860	0.271992	0.098088
148.800	-36.576	0.976122	1.024628	0.768179	0.678059	1.990583	1.384372	0.196877	0.065652
156.300	-36.576	1.025321	1.049727	0.778656	0.704004	1.648547	1.446073	0.929329	0.137253
163.800	-36.576	1.074521	1.050880	0.774272	0.710528	1.428230	1.526612	0.483593	0.163591
171.300	-36.576	1.123721	1.069700	0.797950	0.712414	1.641439	1.500293	0.834089	0.138057
178.800	-36.576	1.172920	1.079224	0.810720	0.712362	1.428707	1.461866	0.539321	0.067231
186.300	-36.576	1.222120	1.086041	0.824122	0.707325	1.480831	1.462076	1.033950	0.127778
193.800	-36.576	1.271320	1.086736	0.832526	0.698496	1.457254	1.435905	0.273273	0.036494
201.300	-36.576	1.320520	1.076726	0.835305	0.679414	1.602767	1.452200	0.070275	0.076680
208.800	-36.576	1.369719	1.079865	0.839609	0.679093	1.598851	1.639589	0.150934	0.023866
216.300	-36.576	1.418919	1.072177	0.835576	0.671848	1.424758	1.580724	-0.049995	-0.020244
223.800	-36.576	1.468119	1.049348	0.815877	0.659908	1.370632	2.107197	0.005002	0.002202
231.300	-36.576	1.517318	1.044365	0.815448	0.652490	1.476336	1.970501	0.090495	0.037192

61

Station 3 inlet survey   0508s3m
Vref=   42.5295 m/s
Blade Spacing =   152.44 mm

x(mm)	z(mm)	x/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
-76.200	-6.096	-0.499869	1.056128	0.860092	0.612902	1.759611	1.519812	0.046566	0.011500
-72.200	-6.096	-0.473629	1.054329	0.854245	0.617962	1.680000	1.528874	0.139296	0.016523
-68.200	-6.096	-0.447389	1.034235	0.834040	0.611573	1.665594	1.501932	0.183845	0.073574
-64.199	-6.096	-0.421143	1.020228	0.826796	0.597722	1.397665	1.407473	0.102934	0.152294
-60.200	-6.096	-0.394909	1.013264	0.818126	0.597809	1.559512	1.470023	0.049362	0.043002
-56.200	-6.096	-0.368670	1.006036	0.815168	0.589581	1.700906	1.491234	-0.098791	-0.025985
-52.200	-6.096	-0.342430	1.004851	0.809356	0.595540	1.678256	1.389364	-0.347908	-0.024027
-48.200	-6.096	-0.316190	0.977296	0.783868	0.583661	1.649845	1.343704	0.101948	0.120378
-44.200	-6.096	-0.289950	0.992107	0.789654	0.600600	1.844703	1.330736	-0.037505	-0.002850
-40.200	-6.096	-0.263710	0.973661	0.771737	0.593661	1.645768	1.519196	0.281537	0.104055
-36.200	-6.096	-0.237470	0.968789	0.770388	0.587413	2.108844	1.487953	0.082777	0.031656
-32.200	-6.096	-0.211231	0.955135	0.742146	0.601249	1.713378	1.665519	0.577030	0.158322
-28.200	-6.096	-0.184991	0.941076	0.729966	0.593945	1.513067	1.734077	0.105027	0.127631
-24.200	-6.096	-0.158751	0.938988	0.713401	0.610539	1.387059	1.659572	0.034858	0.016422
-20.200	-6.096	-0.132511	0.931831	0.700053	0.615008	1.603457	1.697079	0.025889	0.002792
-16.200	-6.096	-0.106271	0.923319	0.683427	0.620844	1.836812	1.663571	-0.186072	-0.019444
-12.200	-6.096	-0.080031	0.915724	0.659020	0.635801	1.734449	1.591105	-0.178936	-0.012122
-8.200	-6.096	-0.053792	0.897220	0.609349	0.658555	1.641665	1.888452	0.022765	0.008958
-4.200	-6.096	-0.027552	0.904723	0.583778	0.691174	1.550760	1.422934	0.631508	0.077461
-0.200	-6.096	-0.001312	0.955939	0.569511	0.767773	1.511025	1.754722	0.143327	0.017134
7.800	-6.096	0.051168	1.137204	0.704633	0.892595	1.610256	1.712202	0.222698	0.056062
11.800	-6.096	0.077408	1.165669	0.764500	0.879954	1.486325	1.537042	0.051760	0.084350
15.800	-6.096	0.103647	1.183122	0.811949	0.860534	1.649670	1.512191	0.106866	0.165249
19.800	-6.096	0.129887	1.188450	0.847365	0.833302	1.864440	1.411388	0.077237	0.037173
23.800	-6.096	0.156127	1.183524	0.859874	0.813233	1.523722	1.534774	0.105139	0.072452
27.800	-6.096	0.182367	1.183016	0.879044	0.791712	1.620544	1.522153	0.063249	0.045847
31.800	-6.096	0.208607	1.178587	0.887544	0.775457	1.784416	1.788375	-0.007313	-0.003163
35.800	-6.096	0.234846	1.166101	0.894158	0.748516	1.492797	1.437996	0.076044	0.093266
39.800	-6.096	0.261086	1.159955	0.896839	0.735645	1.290757	1.657098	0.048986	0.020022
43.800	-6.096	0.287326	1.146416	0.897869	0.712813	1.516419	1.751618	-0.026068	-0.004467
47.800	-6.096	0.313566	1.133552	0.894527	0.696246	1.377313	1.543313	0.028041	0.012728
51.800	-6.096	0.339806	1.117899	0.887998	0.679089	1.534211	1.794573	-0.015304	-0.007758
55.800	-6.096	0.366046	1.115254	0.890829	0.670979	1.493421	1.537280	-0.015515	-0.008064
59.800	-6.096	0.392285	1.102733	0.888531	0.653095	1.683812	1.479273	1.010720	0.166576
63.800	-6.096	0.418525	1.089195	0.879773	0.642138	1.488101	1.529823	0.002619	0.001280
67.800	-6.096	0.444765	1.081891	0.876168	0.634677	1.736627	1.578398	0.043418	0.024911
71.800	-6.096	0.471005	1.073344	0.870981	0.627263	1.718429	1.557890	0.180181	0.086473
75.800	-6.096	0.497245	1.058465	0.862514	0.613529	1.591848	1.423345	0.152208	0.197899

79.800	-6.096	0.523485	1.052053	0.855204	0.612732	1.470096	1.586597	0.112994	0.041973
83.800	-6.096	0.549724	1.039163	0.845065	0.604752	1.359592	1.512884	0.104860	0.051735
87.800	-6.096	0.575964	1.019006	0.830130	0.590978	1.512936	1.452405	0.152161	0.089579
91.800	-6.096	0.602204	1.014940	0.827729	0.587343	1.621190	1.419514	0.014200	0.005317
95.800	-6.096	0.628444	1.004101	0.817550	0.582948	1.529497	1.340746	0.094566	0.037505
99.800	-6.096	0.654684	0.991559	0.804011	0.580305	1.336661	1.275140	0.104291	0.174077
103.800	-6.096	0.680924	0.982556	0.792697	0.580559	1.515771	1.550813	0.072625	0.063476
107.800	-6.096	0.707163	0.974963	0.786480	0.576198	1.477395	1.460840	0.117399	0.116653
111.800	-6.096	0.733403	0.980183	0.792643	0.576609	1.861846	1.397603	0.187693	0.087040
115.800	-6.096	0.759643	0.970385	0.776875	0.581476	1.786564	1.535295	0.169891	0.130052
119.800	-6.096	0.785883	0.973049	0.771300	0.593228	1.867448	1.539125	1.521850	0.151824
123.800	-6.096	0.812123	0.961556	0.751584	0.599760	1.491669	1.379005	1.431370	0.133207
127.800	-6.096	0.838363	0.955824	0.740893	0.603884	1.729014	1.681516	-0.041323	-0.003909
131.800	-6.096	0.864602	0.936526	0.716157	0.603492	1.622310	1.721532	0.359458	0.037578
135.800	-6.096	0.890842	0.917462	0.691341	0.603144	1.609083	1.659857	-0.083676	-0.010883
139.800	-6.096	0.917082	0.911142	0.669768	0.617731	1.618823	1.564256	0.631240	0.069553
143.800	-6.096	0.943322	0.903215	0.641842	0.635484	1.498713	1.609896	-0.104769	-0.010803
147.800	-6.096	0.969562	0.898339	0.610943	0.658604	2.104381	1.378195	0.021557	0.008492
151.800	-6.096	0.995802	0.928184	0.581822	0.723194	1.533881	1.281493	0.051887	0.016454
155.800	-6.096	1.022041	0.910864	0.398740	0.818952	5.252718	1.372915	-0.415668	-0.074991
163.800	-6.096	1.074521	1.140865	0.746489	0.862742	1.378168	1.450244	0.021755	0.030626
167.800	-6.096	1.100761	1.171514	0.816031	0.840560	1.833198	1.448495	-0.034397	-0.008355
171.800	-6.096	1.127001	1.180522	0.850777	0.818420	1.822389	1.431515	0.062919	0.025199
175.800	-6.096	1.153241	1.179250	0.869472	0.796649	1.850253	1.348377	0.080621	0.046379
179.800	-6.096	1.179480	1.172939	0.879575	0.775972	1.615270	1.594855	0.068002	0.038931
183.800	-6.096	1.205720	1.162440	0.889491	0.748382	1.662618	1.459711	0.059764	0.090458
187.800	-6.096	1.231960	1.163889	0.903958	0.733141	1.546582	1.436178	0.097578	0.061210
191.800	-6.096	1.258200	1.157886	0.904563	0.722816	1.457160	1.623033	0.031113	0.012327
195.800	-6.096	1.284440	1.144556	0.901957	0.704612	1.414089	1.614287	0.059030	0.026464
199.800	-6.096	1.310680	1.138069	0.900911	0.695386	1.392187	1.562816	-0.037661	-0.011639
203.800	-6.096	1.336919	1.120060	0.897264	0.670412	1.457660	1.443163	-0.005682	-0.001951
207.800	-6.096	1.363159	1.113907	0.902860	0.652406	1.479328	1.335403	0.065642	0.074662
211.800	-6.096	1.389399	1.101946	0.898470	0.637995	1.503671	1.322895	0.054566	0.077854
215.800	-6.096	1.415639	1.093072	0.893345	0.629871	1.842193	1.404096	0.074076	0.100536
219.800	-6.096	1.441879	1.082949	0.888122	0.619692	1.579446	1.351319	0.225223	0.221712
223.800	-6.096	1.468119	1.078882	0.885818	0.615885	1.610798	1.421482	0.104728	0.117348

Station 1 inlet survey   0508s1I
Vref=   26.9097 m/s
Blade Spacing =   152.44 mm

x(mm)	z(mm)	x/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
-76.200	-36.576	-0.499869	0.992211	0.770391	0.625284	1.583640	1.453710	0.034748	0.135538
-68.700	-36.576	-0.450669	0.985433	0.760551	0.626610	1.692781	1.719557	0.019801	0.018101
-61.200	-36.576	-0.401469	0.990546	0.760440	0.634753	1.668891	1.568036	0.006601	0.005913
-53.700	-36.576	-0.352270	0.982962	0.753572	0.631144	1.700285	1.724431	0.035041	0.035156
-46.200	-36.576	-0.303070	0.976261	0.741078	0.635518	1.353528	1.417046	0.043089	0.035883
-38.700	-36.576	-0.253870	0.967161	0.734932	0.628706	1.439702	1.537615	0.030108	0.152957
-31.200	-36.576	-0.204671	0.967978	0.730205	0.635436	1.559616	1.388390	0.060557	0.078422
-23.700	-36.576	-0.155471	0.960691	0.716611	0.639840	1.369588	1.325499	0.018378	0.011479
-16.200	-36.576	-0.106271	0.964504	0.713754	0.648707	1.555334	1.490254	0.023318	0.025861
-8.700	-36.576	-0.057072	0.981126	0.722531	0.663746	1.547763	1.302289	0.002371	0.000740
-1.200	-36.576	-0.007872	0.999528	0.733249	0.679264	1.625773	1.256761	0.023217	0.005755
6.300	-36.576	0.041328	1.016061	0.741829	0.694315	1.526276	1.338930	0.021613	0.008043
13.800	-36.576	0.090527	1.022899	0.746768	0.699042	1.406642	1.613807	0.053478	0.084108
21.300	-36.576	0.139727	1.031907	0.765765	0.691687	1.340081	1.403697	-0.007155	-0.004317
28.800	-36.576	0.188927	1.042401	0.777708	0.694099	1.400855	1.376586	-0.032412	-0.012759
36.300	-36.576	0.238126	1.036585	0.781361	0.681163	1.371930	1.550621	0.056267	0.084510
43.800	-36.576	0.287326	1.039272	0.790310	0.674905	1.512044	1.497426	-0.021714	-0.031434
51.300	-36.576	0.336526	1.042427	0.794996	0.674266	1.462474	1.344763	0.010819	0.002964
58.800	-36.576	0.385726	1.033308	0.803617	0.649561	1.403164	1.453803	0.027682	0.014701
66.300	-36.576	0.434925	1.016057	0.791228	0.637439	1.439868	1.552770	0.050674	0.078018
73.800	-36.576	0.484125	1.006366	0.788507	0.625321	1.442496	1.290212	0.027331	0.154910
81.300	-36.576	0.533325	1.005396	0.789195	0.622894	1.329028	1.291453	0.041748	0.031153
88.800	-36.576	0.582524	1.005898	0.791391	0.620910	1.557624	1.245912	0.403864	0.112425
96.300	-36.576	0.631724	0.988261	0.775653	0.612393	1.583465	1.316828	0.041867	0.206766
103.800	-36.576	0.680924	0.989940	0.769763	0.622448	1.496828	1.363106	0.097758	0.081515
111.300	-36.576	0.730123	0.981159	0.759882	0.620691	1.417993	1.578789	0.005887	0.008568
118.800	-36.576	0.779323	0.973560	0.747838	0.623344	1.440882	1.674564	0.021273	0.030993
126.300	-36.576	0.828523	0.972753	0.740621	0.630654	1.363884	1.552537	0.015938	0.029629
133.800	-36.576	0.877722	0.972831	0.734884	0.637450	1.465674	1.534891	0.019787	0.026821
141.300	-36.576	0.926922	0.982363	0.741205	0.644708	1.525800	1.350650	0.069930	0.024185
148.800	-36.576	0.976122	0.997640	0.749351	0.658606	1.452444	1.312313	0.425731	0.123748
156.300	-36.576	1.025321	1.002378	0.746519	0.668934	1.407039	1.302694	0.547540	0.215593
163.800	-36.576	1.074521	1.018313	0.763699	0.673594	1.315929	1.298116	0.010092	0.005864
171.300	-36.576	1.123721	1.029514	0.776255	0.676262	1.445271	1.371033	-0.030505	-0.009775
178.800	-36.576	1.172920	1.033709	0.785895	0.671505	1.365760	1.366862	0.005677	0.003329
186.300	-36.576	1.222120	1.035779	0.796163	0.662542	1.435553	1.505977	0.028403	0.054259
193.800	-36.576	1.271320	1.040985	0.806505	0.658179	1.505777	1.506697	0.035127	0.064954
201.300	-36.576	1.320520	1.041301	0.811269	0.652802	1.438274	1.589474	0.009396	0.014819
208.800	-36.576	1.369719	1.035935	0.816486	0.637581	1.576627	1.556155	-0.000938	-0.001099
216.300	-36.576	1.418919	1.026437	0.806464	0.634968	1.323577	1.415896	0.003813	0.002114
223.800	-36.576	1.468119	1.010758	0.799923	0.617866	1.405833	1.310112	0.029981	0.161771
231.300	-36.576	1.517318	0.999736	0.791963	0.610141	1.367563	1.299880	0.035047	0.202750

Station 11 Wake Survey   0520s11h
Vref=   71.6780 m/s
Blade Spacing =   152.44 mm

x(mm)	z(mm)	x/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
-14.220	128.130	-0.093283	0.906698	0.886742	0.189178	1.560940	24.849100	0.404749	0.121073
-6.720	128.130	-0.044083	0.895118	0.879012	0.169039	3.042250	10.939300	0.436386	0.171763
0.780	128.130	0.005117	0.881076	0.867517	0.153975	8.534210	11.653900	0.133856	0.019611
8.280	128.130	0.054316	0.897183	0.886856	0.135738	4.722980	29.158500	0.204645	0.024027
15.780	128.130	0.103516	0.910289	0.902715	0.117186	4.681680	24.415600	0.460583	0.074138
23.280	128.130	0.152716	0.931231	0.926355	0.095176	3.226760	26.962500	0.033884	0.008598
30.780	128.130	0.201916	0.936391	0.933780	0.069866	9.146910	50.216000	-0.479074	-0.031117
45.780	128.130	0.300315	0.092180	-0.034421	0.085513	272.741000	120.763000	4.670610	0.093771
53.280	128.130	0.349515	0.183790	0.037663	0.179889	406.472000	67.712800	1.226600	0.012803
60.780	128.130	0.398714	0.489673	0.440545	0.213775	56.085000	67.956700	-9.857880	-0.053455
68.280	128.130	0.447914	0.796458	0.755149	0.253167	23.508200	55.981500	-32.160900	-0.248802
75.780	128.130	0.497114	0.916432	0.892846	0.206574	6.291390	35.664600	-2.975320	-0.139934
83.280	128.130	0.546313	0.942069	0.911557	0.237818	7.234060	47.900900	-2.960230	-0.076701
90.780	128.130	0.595513	0.928740	0.907949	0.195409	8.283200	15.733300	-0.779083	-0.065583
98.280	128.130	0.644713	0.913951	0.884133	0.231551	10.848900	50.295500	-0.364470	-0.006351
105.780	128.130	0.693912	0.903926	0.875248	0.225885	10.125700	49.809700	-0.870148	-0.016985
113.280	128.130	0.743112	0.886573	0.867078	0.184899	8.392020	21.235900	1.144530	0.077969
120.780	128.130	0.792312	0.887226	0.868169	0.182905	8.711500	16.994300	0.275956	0.022848
128.280	128.130	0.841511	0.875213	0.857669	0.174353	8.791240	10.438300	0.219319	0.031108
135.780	128.130	0.890711	0.874730	0.858184	0.169338	8.736780	10.267500	0.575309	0.085897
143.280	128.130	0.939911	0.881782	0.866562	0.163124	4.091120	16.409100	0.404783	0.083024
150.780	128.130	0.989110	0.865885	0.853422	0.146381	8.287490	12.430700	0.424029	0.064129
158.280	128.130	1.038310	0.880544	0.870822	0.130475	4.491600	14.804700	0.287792	0.074139
165.780	128.130	1.087510	0.887279	0.880326	0.110870	8.314160	18.537500	0.486885	0.062998
173.280	128.130	1.136710	0.905756	0.900424	0.098137	9.738820	38.276300	-0.050793	-0.003001
180.780	128.130	1.185909	0.938101	0.935272	0.072797	7.802770	35.361600	-0.304683	-0.031568
188.280	128.130	1.235109	0.402669	0.376704	0.142254	52.021300	91.325800	39.356300	0.300887
195.780	128.130	1.284309	0.071932	-0.041807	0.058535	197.900000	160.270000	2.796240	0.070119
203.280	128.130	1.333508	0.143972	0.088936	0.113217	189.440000	102.705000	-1.038550	-0.010318
210.780	128.130	1.382708	0.304063	0.249665	0.173555	91.931000	76.598400	-10.844800	-0.069178
218.280	128.130	1.431908	0.709691	0.673366	0.224143	31.737200	60.945500	-30.528900	-0.203542
225.780	128.130	1.481107	0.887262	0.864832	0.198245	12.576700	47.278400	-10.703100	-0.204349
233.280	128.130	1.530307	0.933275	0.913562	0.190806	3.221000	24.284100	-0.954794	-0.136300
240.780	128.130	1.579507	0.918625	0.900121	0.183452	8.553110	19.734400	-0.633533	-0.044241

65

Station 13 Wake Survey   0520s13h
Vref=   71.6420 m/s
Blade Spacing =   152.44 mm

x(mm)	z(mm)	x/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
-14.220	146.302	-0.093283	0.894228	0.875401	0.182524	10.723800	16.626200	0.210572	0.014401
-6.720	146.302	-0.044083	0.886423	0.869532	0.172222	10.597600	13.028000	0.538137	0.050710
0.780	146.302	0.005117	0.885243	0.869343	0.167031	10.763900	15.963600	0.387391	0.030250
8.280	146.302	0.054316	0.890938	0.875111	0.167184	10.847700	23.840800	-0.381198	-0.019629
15.780	146.302	0.103516	0.903435	0.888618	0.162948	10.016100	13.659700	0.546163	0.053713
23.280	146.302	0.152716	0.922068	0.904003	0.181624	9.657070	16.487100	0.066242	0.004937
30.780	146.302	0.201916	0.910470	0.883881	0.218425	11.658500	26.760100	-0.634101	-0.020511
38.280	146.302	0.251115	0.727748	0.621614	0.378434	30.345900	30.554100	2.855360	0.025506
45.780	146.302	0.300315	0.209771	0.081618	0.193241	192.625000	86.679700	27.880600	0.206278
53.280	146.302	0.349515	0.261680	0.174656	0.194863	133.197000	73.842300	-1.329790	-0.007740
60.780	146.302	0.398714	0.263538	0.209585	0.159769	110.649000	88.619000	-4.357120	-0.025854
68.280	146.302	0.447914	0.570094	0.525158	0.221848	45.986600	61.601700	-28.946600	-0.170880
75.780	146.302	0.497114	0.813887	0.785495	0.213097	18.617500	56.139000	-22.089600	-0.246006
83.280	146.302	0.546313	0.885206	0.867039	0.178416	11.373600	45.319500	-7.882930	-0.192618
90.780	146.302	0.595513	0.896261	0.880721	0.166169	10.686200	27.342200	-0.510679	-0.023268
98.280	146.302	0.644713	0.887845	0.872608	0.163778	10.215300	13.652000	-0.196859	-0.019244
105.780	146.302	0.693912	0.881851	0.865628	0.168375	12.418500	11.674000	0.797497	0.073535
113.280	146.302	0.743112	0.876882	0.860279	0.169828	11.192000	14.907500	1.085520	0.086765
120.780	146.302	0.792312	0.872480	0.832502	0.261077	15.226100	65.723300	-26.943700	-0.241356
128.280	146.302	0.841511	0.871293	0.856230	0.161315	10.783600	11.011800	-0.105157	-0.012492
135.780	146.302	0.890711	0.882336	0.865808	0.169985	8.830880	24.208800	0.443798	0.027481
143.280	146.302	0.939911	0.890573	0.874794	0.166902	4.861700	19.220900	0.359554	0.051345
150.780	146.302	0.989110	0.887873	0.861415	0.215134	10.948900	57.062700	-9.231460	-0.155343
158.280	146.302	1.038310	0.874923	0.861820	0.150846	10.916500	12.017600	0.080032	0.009143
165.780	146.302	1.087510	0.894107	0.880181	0.157194	9.020590	26.776600	0.292154	0.017033
173.280	146.302	1.136710	0.907134	0.891904	0.165527	10.073900	18.479200	-0.006269	-0.000444
180.780	146.302	1.185909	0.919032	0.897705	0.196841	7.879110	26.207700	-0.232760	-0.012429
188.280	146.302	1.235109	0.837981	0.788068	0.284885	17.268300	36.031400	5.829800	0.081312
195.780	146.302	1.284309	0.266743	0.147493	0.222256	117.188000	76.766100	28.965300	0.191366
203.280	146.302	1.333508	0.119185	0.026613	0.116176	500.803000	127.397000	2.289930	0.022618
210.780	146.302	1.382708	0.259884	0.178475	0.188909	124.504000	71.299400	6.303690	0.041036
218.280	146.302	1.431908	0.522925	0.474463	0.219853	53.355300	63.792100	-20.550100	-0.112771
225.780	146.302	1.481107	0.788001	0.765199	0.188193	21.688400	63.858700	-21.079100	-0.205916
233.280	146.302	1.530307	0.876476	0.865939	0.135495	12.854600	49.691900	-3.567360	-0.092738
240.780	146.302	1.579507	0.893639	0.881847	0.144690	9.991570	26.810200	-0.033262	-0.001896

Station 12 Wake Survey 0521s12h
Vref= 70.6659 m/s
Blade Spacing = 152.44 mm

x(mm)	z(mm)	x/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
-14.220	134.110	-0.093283	0.899434	0.880054	0.185705	1.387528	1.675061	0.478400	0.035033
-6.720	134.110	-0.044083	0.878243	0.861171	0.172326	1.506196	1.733862	-0.660182	-0.030048
0.780	134.110	0.005117	0.882402	0.868686	0.154974	1.671891	1.650430	0.133857	0.017306
8.280	134.110	0.054316	0.880911	0.868362	0.148165	1.530810	1.839348	0.191000	0.008019
15.780	134.110	0.103516	0.909791	0.899481	0.136578	1.154312	1.791445	0.442827	0.037009
23.280	134.110	0.152716	0.928984	0.919991	0.128944	1.299110	1.954934	-1.383140	-0.112367
30.780	134.110	0.201916	0.939661	0.930423	0.131438	2.312418	3.354815	-0.670932	-0.043895
38.280	134.110	0.251115	0.372830	0.294729	0.228336	18.875987	14.898953	34.849600	0.226889
45.780	134.110	0.300315	0.153845	0.064490	0.139677	14.457937	11.501357	6.226510	0.071059
53.280	134.110	0.349515	0.195816	0.121448	0.153604	17.084834	12.532883	-1.262550	-0.010829
60.780	134.110	0.398714	0.435248	0.379126	0.213785	22.902033	13.776233	-16.026900	-0.092438
68.280	134.110	0.447914	0.735166	0.698761	0.228479	16.476373	12.059506	-22.718600	-0.162913
75.780	134.110	0.497114	0.882816	0.859758	0.200446	4.281528	7.331194	-10.093200	-0.171832
83.280	134.110	0.546313	0.916985	0.899384	0.178798	2.010780	3.252044	-1.578520	-0.073895
90.780	134.110	0.595513	0.910541	0.893502	0.175331	1.586913	2.050194	-1.670900	-0.101913
98.280	134.110	0.644713	0.922425	0.904064	0.183127	1.336333	1.922847	0.307164	0.050005
105.780	134.110	0.693912	0.888287	0.869262	0.182858	1.468566	1.745563	0.623294	0.025768
113.280	134.110	0.743112	0.887121	0.867854	0.183884	1.513555	1.751249	0.308369	0.018999
120.780	134.110	0.792312	0.876948	0.858236	0.180193	1.602944	1.580233	0.324051	0.022170
128.280	134.110	0.841511	0.873319	0.855833	0.173884	1.626818	1.597796	-0.010156	-0.000592
135.780	134.110	0.890711	0.872486	0.856828	0.164550	2.080600	1.472578	0.349451	0.049968
143.280	134.110	0.939911	0.870191	0.853823	0.167979	1.605598	1.645064	0.171484	0.009695
150.780	134.110	0.989110	0.861533	0.847985	0.152184	2.881715	1.517188	-0.106030	-0.013113
158.280	134.110	1.038310	0.866892	0.856178	0.135871	1.456736	1.689874	0.661735	0.048860
165.780	134.110	1.087510	0.902322	0.893622	0.124995	1.289523	1.739780	0.519377	0.190296
173.280	134.110	1.136710	0.914785	0.906443	0.123254	1.273661	2.083770	-0.189583	-0.010026
180.780	134.110	1.185909	0.947700	0.939622	0.123486	1.149345	2.778994	-0.021933	-0.004834
188.280	134.110	1.235109	0.646182	0.601502	0.236107	18.041459	10.013667	17.720700	0.141400
195.780	134.110	1.284309	0.080598	-0.019181	0.078282	-4.298031	12.953061	12.652800	0.206243
203.280	134.110	1.333508	0.157936	0.072718	0.140199	14.730666	10.999911	0.997275	0.011705
210.780	134.110	1.382708	0.266236	0.219697	0.150382	22.539394	13.169549	-4.192620	-0.027556
218.280	134.110	1.431908	0.658681	0.614575	0.236976	19.256112	13.015866	-17.658900	-0.110121
225.780	134.110	1.481107	0.868422	0.846187	0.195250	4.704862	7.907791	-22.625700	-0.367462
233.280	134.110	1.530307	0.910459	0.894114	0.171739	2.416148	3.605921	-1.571540	-0.073138
240.780	134.110	1.579507	0.906235	0.891223	0.164262	11.103600	15.358700	-0.585340	-0.046952

Station 12 Wake Survey   0521s12m
Vref=   40.9729 m/s
Blade Spacing =   152.44 mm

x(mm)	z(mm)	x/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
-14.220	134.110	-0.093283	0.851294	0.821667	0.222635	1.810676	2.388537	-3.478220	-0.117529
-6.720	134.110	-0.044083	0.839479	0.825346	0.153406	2.097748	1.652362	0.148754	0.050725
0.780	134.110	0.005117	0.846215	0.828631	0.171618	1.662067	2.139308	-0.562340	-0.034694
8.280	134.110	0.054316	0.856710	0.842020	0.157975	1.484810	2.790295	0.208685	0.027197
15.780	134.110	0.103516	0.862014	0.852913	0.124936	2.291060	2.172895	-0.294655	-0.033111
23.280	134.110	0.152716	0.881817	0.875020	0.109269	2.615994	2.333517	0.114608	0.041692
30.780	134.110	0.201916	0.907202	0.898872	0.122651	3.078035	3.641775	0.146982	0.013609
38.280	134.110	0.251115	0.193169	0.189295	0.038490	23.975394	26.915845	20.061100	0.219382
45.780	134.110	0.300315	0.021752	-0.021523	-0.003152	7.452576	2.751158	-16.081900	-0.155203
53.280	134.110	0.349515	0.503418	0.503413	0.002539	20.373083	0.644480	-29.361400	-0.233304
60.780	134.110	0.398714	0.816574	0.814304	0.060841	12.123278	20.274434	-6.865950	-0.141897
68.280	134.110	0.447914	0.883599	0.878673	0.093170	5.020696	4.554451	-2.978700	-0.198212
75.780	134.110	0.497114	0.912886	0.889156	0.206793	2.834816	5.171480	-0.228653	-0.009085
83.280	134.110	0.546313	0.890611	0.863632	0.217552	2.040857	3.225754	-1.158470	-0.032707
90.780	134.110	0.595513	0.889500	0.861340	0.222045	1.921210	2.755887	-2.574300	-0.111153
98.280	134.110	0.644713	0.866102	0.852529	0.152726	3.104238	1.677054	0.151113	0.069733
105.780	134.110	0.693912	0.876784	0.850335	0.213723	1.399609	7.355678	0.231862	0.044709
113.280	134.110	0.743112	0.847633	0.831176	0.166222	2.065431	1.790093	0.458124	0.046301
120.780	134.110	0.792312	0.854406	0.829236	0.205858	1.677677	2.098311	-1.227060	-0.074291
128.280	134.110	0.841511	0.852661	0.822461	0.224917	1.803780	2.519562	-2.178660	-0.067988
135.780	134.110	0.890711	0.848654	0.823727	0.204175	1.924293	2.354645	-1.276590	-0.054844
143.280	134.110	0.939911	0.832231	0.820823	0.137322	2.157689	1.581362	0.208729	0.081472
150.780	134.110	0.989110	0.834981	0.824330	0.132944	2.452630	1.599362	0.178199	0.117813
158.280	134.110	1.038310	0.832348	0.823286	0.122480	1.866743	1.463452	0.195242	0.105837
165.780	134.110	1.087510	0.861538	0.841795	0.183388	1.757315	3.132113	-1.812110	-0.082004
173.280	134.110	1.136710	0.869167	0.861394	0.115980	2.452905	2.595484	0.371135	0.037305
180.780	134.110	1.185909	0.889842	0.882847	0.111342	2.936667	3.521303	-0.595730	-0.063495
188.280	134.110	1.235109	0.548904	0.526997	0.153523	17.319707	13.927185	22.019900	0.284483
195.780	134.110	1.284309	0.118364	-0.101998	-0.060054	11.376207	13.604422	-9.844170	-0.117620
203.280	134.110	1.333508	0.343305	0.334912	-0.075450	25.719638	11.028774	-32.479300	-0.284778
210.780	134.110	1.382708	0.771786	0.770734	0.040239	13.932401	50.968279	-12.422800	-0.198303
218.280	134.110	1.431908	0.886493	0.882164	0.087513	3.982607	5.199734	-1.117030	-0.067122
225.780	134.110	1.481107	0.891074	0.882229	0.125228	2.776085	3.221262	0.349781	0.022124
233.280	134.110	1.530307	0.907331	0.885820	0.196398	1.949795	3.710019	0.941023	0.061204
240.780	134.110	1.579507	0.873773	0.863288	0.134966	1.918312	1.576182	0.124229	0.015543

Station 11 Wake Survey   0521s11m
Vref=   40.6602 m/s
Blade Spacing =   152.44 mm

x(mm)	z(mm)	x/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
-14.220	128.016	-0.093283	0.854841	0.837908	0.169300	2.131654	1.993580	-0.070015	-0.008539
-6.720	128.016	-0.044083	0.842224	0.826614	0.161390	1.776584	1.797809	0.109400	0.012010
0.780	128.016	0.005117	0.835525	0.823171	0.143144	1.956307	1.935370	-0.068253	-0.008343
8.280	128.016	0.054316	0.839561	0.831425	0.116598	1.948685	1.820628	0.252046	0.109904
15.780	128.016	0.103516	0.859196	0.851939	0.111435	1.526546	2.465606	0.279030	0.057469
23.280	128.016	0.152716	0.878306	0.874755	0.078905	1.930724	2.008245	0.087328	0.026232
30.780	128.016	0.201916	0.929452	0.925893	0.081238	2.640814	3.534578	0.210999	0.016395
45.780	128.016	0.300315	0.075979	-0.074898	0.012774	16.204366	67.235528	-17.815300	-0.193305
53.280	128.016	0.349515	0.561173	0.561153	-0.004505	23.505023	2.638405	-9.199990	-0.087760
60.780	128.016	0.398714	0.851732	0.848616	0.072792	13.102548	13.032284	-5.683170	-0.126457
68.280	128.016	0.447914	0.921100	0.913963	0.114431	3.871527	3.794588	1.288480	0.116360
75.780	128.016	0.497114	0.929759	0.920298	0.132290	2.296208	2.352320	0.588269	0.229949
83.280	128.016	0.546313	0.910615	0.898481	0.148173	2.212508	1.949662	0.186533	0.051691
90.780	128.016	0.595513	0.889509	0.873791	0.166480	1.999329	1.957205	-1.146380	-0.081045
98.280	128.016	0.644713	0.887549	0.870901	0.171097	1.686752	1.804661	-0.151114	-0.019840
105.780	128.016	0.693912	0.864128	0.846577	0.173269	1.908236	1.807735	0.360116	0.029091
113.280	128.016	0.743112	0.863904	0.846779	0.171168	2.055285	1.756473	0.246764	0.031084
120.780	128.016	0.792312	0.861410	0.847054	0.156618	1.859996	1.504650	0.112064	0.053960
128.280	128.016	0.841511	0.857101	0.842864	0.155573	1.857756	1.600566	0.036328	0.021821
135.780	128.016	0.890711	0.842086	0.826745	0.160003	2.042448	1.881615	0.161217	0.016971
143.280	128.016	0.939911	0.831147	0.817490	0.150064	1.801699	1.720324	-0.618869	-0.061312
150.780	128.016	0.989110	0.842994	0.831927	0.136155	1.383228	1.855759	0.297327	0.075952
158.280	128.016	1.038310	0.832295	0.824590	0.112988	1.728737	1.682601	0.068036	0.036884
165.780	128.016	1.087510	0.846764	0.841191	0.096979	2.097207	1.891359	0.224393	0.076290
173.280	128.016	1.136710	0.863909	0.860129	0.080729	2.113680	1.990460	0.079348	0.018435
180.780	128.016	1.185909	0.908554	0.905308	0.076747	2.293362	3.165596	0.595774	0.057458
188.280	128.016	1.235109	0.222483	0.218458	0.042128	23.630202	21.848809	45.366900	0.495240
195.780	128.016	1.284309	0.173969	-0.173159	-0.016762	10.065955	5.509810	-4.373450	-0.058272
203.280	128.016	1.333508	0.352517	0.351934	0.020247	30.503478	37.049577	-36.249300	-0.267596
210.780	128.016	1.382708	0.820766	0.818820	0.056483	13.654075	22.324704	-10.653900	-0.184811
218.280	128.016	1.431908	0.917989	0.912932	0.096228	4.265072	4.158197	0.666367	0.071963
225.780	128.016	1.481107	0.912334	0.904927	0.116030	2.749973	2.395199	0.408235	0.085008
233.280	128.016	1.530307	0.909068	0.896744	0.149193	1.948275	2.078065	-1.070520	-0.073868
240.780	128.016	1.579507	0.893431	0.880778	0.149828	1.846313	1.809612	-1.077100	-0.096184

Station 13 Wake Survey   0521s13m
Vref=   40.6986 m/s
Blade Spacing =   152.44 mm

x(mm)	z(mm)	x/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
-14.220	146.302	-0.093283	0.860523	0.846589	0.154225	2.702203	1.854247	0.183196	0.075522
-6.720	146.302	-0.044083	0.859865	0.846120	0.153133	1.896790	1.697054	0.247565	0.103431
0.780	146.302	0.005117	0.854324	0.840739	0.151755	1.916616	1.953328	0.059741	0.009035
8.280	146.302	0.054316	0.851275	0.840611	0.134328	1.722404	1.778049	0.306580	0.045961
15.780	146.302	0.103516	0.871116	0.858253	0.149133	1.433394	2.358351	0.250577	0.047015
23.280	146.302	0.152716	0.886431	0.876077	0.135089	2.178575	2.968557	0.366060	0.240367
30.780	146.302	0.201916	0.889343	0.874924	0.159488	4.901230	5.349620	-1.220380	-0.076524
38.280	146.302	0.251115	0.625439	0.578772	0.237059	13.916914	14.140618	19.570700	0.288884
45.780	146.302	0.300315	0.156095	0.152450	0.033531	27.576305	35.607637	-16.697800	-0.152661
53.280	146.302	0.349515	0.463957	0.463603	-0.018123	27.412253	8.294311	-27.234700	-0.258132
60.780	146.302	0.398714	0.711258	0.710663	0.029035	16.070939	50.969034	-14.902300	-0.242546
68.280	146.302	0.447914	0.840466	0.835559	0.090676	4.972632	7.402615	-4.202510	-0.132303
75.780	146.302	0.497114	0.888578	0.878777	0.131604	2.833107	4.164378	-1.225280	-0.072563
83.280	146.302	0.546313	0.875519	0.864615	0.137752	2.522755	2.577921	0.278429	0.021992
90.780	146.302	0.595513	0.874915	0.863600	0.140258	2.191712	2.011498	0.374565	0.045228
98.280	146.302	0.644713	0.872313	0.861049	0.139734	2.034504	1.663179	0.171253	0.064873
105.780	146.302	0.693912	0.879898	0.865202	0.160138	1.478353	2.562679	0.062286	0.022716
113.280	146.302	0.743112	0.859152	0.846240	0.148390	2.107536	1.600830	0.212346	0.079816
120.780	146.302	0.792312	0.872057	0.858958	0.150585	1.548521	1.696910	0.180360	0.232745
128.280	146.302	0.841511	0.868863	0.856211	0.147743	1.843637	1.644364	0.229527	0.212272
135.780	146.302	0.890711	0.870131	0.858260	0.143238	1.403058	1.589851	0.123824	0.126643
143.280	146.302	0.939911	0.854110	0.840587	0.151394	1.708963	1.801448	0.126394	0.013075
150.780	146.302	0.989110	0.861101	0.849688	0.139731	1.475364	1.916199	0.175413	0.247902
158.280	146.302	1.038310	0.844914	0.835658	0.124727	2.517427	1.653620	0.095768	0.047167
165.780	146.302	1.087510	0.848619	0.838257	0.132200	2.141462	2.282365	-0.150330	-0.013805
173.280	146.302	1.136710	0.865140	0.854123	0.137620	2.275392	2.436998	-0.991169	-0.091111
180.780	146.302	1.185909	0.873401	0.861197	0.145498	3.882206	3.678768	-0.886755	-0.132965
188.280	146.302	1.235109	0.731477	0.704403	0.197168	11.525858	9.670367	15.574700	0.296090
195.780	146.302	1.284309	0.169713	0.146331	0.085964	20.452290	25.988443	8.222970	0.084966
203.280	146.302	1.333508	0.272815	0.270469	-0.035717	27.076087	12.726042	-29.945900	-0.282630
210.780	146.302	1.382708	0.671384	0.671048	0.021204	16.265256	44.119990	-9.383120	-0.131344
218.280	146.302	1.431908	0.831886	0.828215	0.078059	5.762365	7.653002	-3.541210	-0.108415
225.780	146.302	1.481107	0.867032	0.861015	0.101969	3.573212	3.920039	0.367268	0.029460
233.280	146.302	1.530307	0.873802	0.865322	0.121434	2.255237	2.307730	0.045781	0.004702
240.780	146.302	1.579507	0.870659	0.860101	0.135192	2.217641	2.061518	0.359710	0.036169

Station 13 Wake Survey 0521s13l
Vref= 26.9777 m/s
Blade Spacing = 152.44 mm

x(mm)	z(mm)	x/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
-14.220	146.302	-0.093283	0.862119	0.850788	0.139332	1.659896	1.792229	0.036217	0.035817
-6.720	146.302	-0.044083	0.865063	0.855811	0.126188	2.065567	1.864439	0.119567	0.088367
0.780	146.302	0.005117	0.856797	0.849261	0.113379	2.003831	1.855796	0.139996	0.101246
8.280	146.302	0.054316	0.849468	0.842874	0.105641	1.585513	1.777678	0.096852	0.142091
15.780	146.302	0.103516	0.859970	0.853801	0.102808	1.950655	2.201345	0.120990	0.060760
23.280	146.302	0.152716	0.864610	0.858665	0.101215	1.905463	2.440315	0.284600	0.060851
30.780	146.302	0.201916	0.875038	0.868666	0.105414	2.718628	3.525193	0.030524	0.005437
38.280	146.302	0.251115	0.441131	0.428272	0.105743	13.293956	19.071048	5.908800	0.238506
45.780	146.302	0.300315	0.684717	0.684577	0.013909	10.958906	5.111320	-1.952480	-0.088737
53.280	146.302	0.349515	0.872358	0.869722	0.067731	2.318592	3.872602	0.036884	0.005384
60.780	146.302	0.398714	0.880661	0.876576	0.084706	2.019648	2.370094	0.058710	0.009642
68.280	146.302	0.447914	0.873584	0.867628	0.101830	1.835163	2.114806	0.116810	0.020537
75.780	146.302	0.497114	0.873510	0.865904	0.115019	1.636186	2.023864	0.223689	0.075795
83.280	146.302	0.546313	0.868347	0.860622	0.115584	1.592082	2.214192	-0.001843	-0.001281
90.780	146.302	0.595513	0.870382	0.862542	0.116568	1.886957	1.306589	0.030997	0.043034
98.280	146.302	0.644713	0.870085	0.861037	0.125171	1.916212	1.473723	0.056581	0.061051
105.780	146.302	0.693912	0.860429	0.850829	0.128184	1.717466	1.440058	0.045499	0.114501
113.280	146.302	0.743112	0.854665	0.845098	0.127513	1.682125	1.793829	0.063804	0.122545
120.780	146.302	0.792312	0.856500	0.847229	0.125680	2.413629	1.610264	0.063527	0.080029
128.280	146.302	0.841511	0.853557	0.843964	0.127592	2.122678	1.570854	0.071275	0.041221
135.780	146.302	0.890711	0.854365	0.845220	0.124668	1.771303	1.472480	0.047301	0.040511
143.280	146.302	0.939911	0.856311	0.846303	0.130529	1.712620	1.896643	0.224137	0.042745
150.780	146.302	0.989110	0.844486	0.834956	0.126520	1.398477	2.090231	-0.386258	-0.069445
158.280	146.302	1.038310	0.848460	0.842262	0.102365	1.567139	1.749228	0.200234	0.070365
165.780	146.302	1.087510	0.842581	0.838845	0.079251	1.717300	1.584410	0.071522	0.153306
173.280	146.302	1.136710	0.859888	0.855922	0.082491	1.835045	2.606657	0.103866	0.018253
180.780	146.302	1.185909	0.862961	0.861282	0.053806	2.924293	2.107799	0.019592	0.019262
188.280	146.302	1.235109	0.599417	0.595084	0.071959	12.827514	17.317219	1.159110	0.052322
195.780	146.302	1.284309	0.707421	0.707229	0.016418	10.262947	22.431504	-2.673450	-0.181054
203.280	146.302	1.333508	0.866983	0.864773	0.061858	2.065209	3.519412	0.031514	0.004655
210.780	146.302	1.382708	0.876958	0.874374	0.067238	1.874527	1.989095	0.162253	0.022552
218.280	146.302	1.431908	0.883722	0.877336	0.106047	1.902573	2.295498	0.135557	0.015325
225.780	146.302	1.481107	0.880309	0.876079	0.086164	1.581165	1.414611	0.051792	0.084324
233.280	146.302	1.530307	0.885131	0.877332	0.117242	1.645691	1.809719	0.251200	0.046302
240.780	146.302	1.579507	0.885261	0.878096	0.112419	1.882040	1.406802	0.053184	0.081797

Station 2 Inlet Survey   0602s2m

Vref=   42.3748 m/s

Blade Spacing =   152.44 mm

x(mm)	z(mm)	x/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
-76.200	-18.288	-0.499869	1.046240	0.826944	0.640923	1.587559	1.659158	0.052871	0.078344
-72.200	-18.288	-0.473629	1.030183	0.811572	0.634528	1.484235	1.717617	0.070701	0.086206
-68.200	-18.288	-0.447389	1.023604	0.806456	0.630391	1.518951	1.410109	0.050658	0.100363
-64.199	-18.288	-0.421143	1.015120	0.801351	0.623139	1.466577	1.724046	0.071301	0.113931
-60.200	-18.288	-0.394909	1.012994	0.802269	0.618481	1.528034	1.548892	0.074280	0.080050
-56.200	-18.288	-0.368670	1.000758	0.787385	0.617690	1.718217	1.510351	0.107950	0.184028
-52.200	-18.288	-0.342430	1.007474	0.794144	0.619951	1.807091	1.444077	0.082304	0.077432
-48.200	-18.288	-0.316190	1.001095	0.786083	0.619890	1.813949	1.346363	0.096193	0.108505
-44.200	-18.288	-0.289950	0.995139	0.777637	0.620952	1.709704	1.466650	0.132179	0.131310
-40.200	-18.288	-0.263710	0.993463	0.771333	0.626108	1.729337	1.425804	0.078886	0.081603
-36.200	-18.288	-0.237470	0.980979	0.752572	0.629251	1.563687	1.532164	0.076329	0.140394
-32.200	-18.288	-0.211231	0.976167	0.744416	0.631463	1.544493	1.501719	0.095662	0.174949
-28.200	-18.288	-0.184991	0.975398	0.740563	0.634797	1.704553	1.490300	0.139933	0.181572
-20.200	-18.288	-0.132511	0.961189	0.709896	0.648022	1.346289	1.763002	0.102877	0.162411
-16.200	-18.288	-0.106271	0.965590	0.707770	0.656831	1.456010	1.380706	0.078176	0.073458
-12.200	-18.288	-0.080031	0.970744	0.699340	0.673254	1.515079	1.336847	0.092750	0.102309
-8.200	-18.288	-0.053792	0.978504	0.693724	0.690082	1.601239	1.369123	0.066428	0.097647
-4.200	-18.288	-0.027552	0.990497	0.690743	0.709898	1.342328	1.312914	0.057379	0.083039
-0.200	-18.288	-0.001312	1.008765	0.696867	0.729370	1.373608	1.320976	0.030015	0.038168
3.800	-18.288	0.024928	1.034192	0.712242	0.749842	1.433016	1.406733	0.078809	0.092465
7.800	-18.288	0.051168	1.063040	0.735628	0.767402	1.493561	1.488084	0.068323	0.081360
11.800	-18.288	0.077408	1.088914	0.762217	0.777660	1.806409	1.547591	0.121461	0.162446
15.800	-18.288	0.103647	1.109445	0.790866	0.778071	1.685676	1.429581	0.077522	0.104914
19.800	-18.288	0.129887	1.127002	0.814822	0.778588	1.519919	1.492685	0.079944	0.103553
23.800	-18.288	0.156127	1.131906	0.829172	0.770507	1.701345	1.547264	0.076514	0.112226
27.800	-18.288	0.182367	1.131394	0.839796	0.758151	1.440293	1.605264	0.131100	0.191950
31.800	-18.288	0.208607	1.128048	0.846616	0.745476	1.584239	1.630468	0.104502	0.161561
35.800	-18.288	0.234846	1.125464	0.854390	0.732589	1.493499	1.398285	0.053190	0.073355
39.800	-18.288	0.261086	1.121711	0.858994	0.721365	1.559134	1.355243	0.103448	0.123941
47.800	-18.288	0.313566	1.107526	0.860077	0.697771	1.604913	1.345846	0.072356	0.133608
51.800	-18.288	0.339806	1.101527	0.859806	0.688546	1.540153	1.395580	0.088998	0.123920
55.800	-18.288	0.366046	1.103753	0.873146	0.675194	1.801572	1.408265	0.100215	0.164483
59.800	-18.288	0.392285	1.093570	0.868080	0.665082	1.717999	1.602833	0.051353	0.067682
63.800	-18.288	0.418525	1.087845	0.865288	0.659307	1.655659	1.471276	0.088314	0.092618
67.800	-18.288	0.444765	1.074877	0.856606	0.649299	1.735055	1.605521	0.138248	0.197182
71.800	-18.288	0.471005	1.064371	0.850470	0.639991	1.741312	1.675836	0.086230	0.102337
75.800	-18.288	0.497245	1.047278	0.834000	0.633428	1.343341	1.487074	0.098811	0.211583
79.800	-18.288	0.523485	1.045081	0.833795	0.630063	1.542187	1.731489	0.092537	0.119334

83.800	-18.288	0.549724	1.038462	0.828681	0.625851	1.465672	1.504232	0.059901	0.067877
87.800	-18.288	0.575964	1.028090	0.820363	0.619658	1.391942	1.311364	0.055279	0.077226
91.800	-18.288	0.602204	1.025178	0.816216	0.620310	1.347908	1.452747	0.065683	0.093491
95.800	-18.288	0.628444	1.020602	0.811902	0.618419	1.466288	1.488919	0.041614	0.050832
99.800	-18.288	0.654684	1.003457	0.793207	0.614611	1.467632	1.441428	0.084622	0.165991
103.800	-18.288	0.680924	1.005706	0.795662	0.615116	1.534505	1.353236	0.117181	0.139242
107.800	-18.288	0.707163	0.997600	0.785637	0.614802	1.697156	1.485398	0.149881	0.255683
111.800	-18.288	0.733403	0.993793	0.779027	0.617044	1.707066	1.605757	0.096895	0.127047
115.800	-18.288	0.759643	0.988038	0.769750	0.619439	1.721338	1.446619	0.148427	0.176504
119.800	-18.288	0.785883	0.994350	0.771709	0.627054	1.562255	1.524444	0.150758	0.142858
123.800	-18.288	0.812123	0.979917	0.754160	0.625686	1.589906	1.570333	0.115331	0.164725
127.800	-18.288	0.838363	0.976500	0.744004	0.632466	1.427661	1.585762	0.125793	0.155563
131.800	-18.288	0.864602	0.971795	0.732079	0.639097	1.459626	1.503680	0.066914	0.059648
135.800	-18.288	0.890842	0.973973	0.722951	0.652659	1.367874	1.575330	0.070450	0.063091
139.800	-18.288	0.917082	0.975743	0.713431	0.665650	1.616678	1.530690	0.097824	0.115390
143.800	-18.288	0.943322	0.983990	0.707597	0.683770	1.693974	1.465899	0.067061	0.071350
147.800	-18.288	0.969562	0.996986	0.706956	0.702993	1.426707	1.261915	0.032685	0.038060
151.800	-18.288	0.995802	1.015276	0.710628	0.725115	1.593099	1.431957	0.059413	0.095476
155.800	-18.288	1.022041	1.037957	0.723260	0.744480	1.685934	1.437174	0.047307	0.068602
159.800	-18.288	1.048281	1.064954	0.749627	0.756431	1.756077	1.464942	0.047153	0.076024
163.800	-18.288	1.074521	1.094828	0.779100	0.769188	1.883583	1.467334	0.031765	0.042735
167.800	-18.288	1.100761	1.105959	0.794876	0.768971	1.773725	1.496687	0.095824	0.144524
171.800	-18.288	1.127001	1.123581	0.819308	0.768874	1.683128	1.604349	0.048273	0.075327
175.800	-18.288	1.153241	1.139859	0.841080	0.769328	1.629668	1.563612	0.085242	0.120175
179.800	-18.288	1.179480	1.142766	0.853857	0.759501	1.651179	1.619681	0.066177	0.098234
183.800	-18.288	1.205720	1.138585	0.859685	0.746533	1.673318	1.448879	0.042338	0.063139
187.800	-18.288	1.231960	1.141169	0.869828	0.738691	1.679769	1.462779	0.113419	0.179422
191.800	-18.288	1.258200	1.133063	0.871726	0.723829	1.555690	1.441852	0.042083	0.073536
195.800	-18.288	1.284440	1.131408	0.877441	0.714271	1.688469	1.463127	0.083827	0.135901
199.800	-18.288	1.310680	1.109471	0.861616	0.698958	1.314007	1.420520	0.053769	0.127606
203.800	-18.288	1.336919	1.110990	0.875976	0.683350	1.619890	1.295426	0.016398	0.021107
207.800	-18.288	1.363159	1.105643	0.875693	0.674988	1.617921	1.274743	0.072198	0.113847
211.800	-18.288	1.389399	1.101954	0.876240	0.668211	1.850470	1.386357	0.091572	0.141618
215.800	-18.288	1.415639	1.096092	0.873951	0.661535	1.822677	1.398167	0.082188	0.124435
219.800	-18.288	1.441879	1.084673	0.866692	0.652194	1.591351	1.584930	0.062115	0.095927
223.800	-18.288	1.468119	1.082592	0.865097	0.650856	1.652793	1.722068	0.083497	0.098595

Station 2 Inlet Survey   0602s2l
Vref=   25.3301 m/s
Blade Spacing =   152.44 mm

x(mm)	z(mm)	d/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
-72.200	-18.288	-0.474	0.995247	0.784213	0.612805	1.77019672	4.946938	0.017191	0.108771
-68.200	-18.288	-0.447	0.985223	0.776910	0.605868	8.08654214	1.602521	0.016383	0.113765
-64.199	-18.288	-0.421	0.976490	0.768742	0.602141	1.77384035	1.546696	0.006531	0.050108
-60.200	-18.288	-0.395	0.971303	0.764802	0.598754	9.23123131	1.706431	0.024576	0.150497
-56.200	-18.288	-0.369	0.956601	0.750104	0.593661	1.77143724	1.740122	0.035700	0.227077
-52.200	-18.288	-0.342	0.954205	0.744817	0.596448	1.94523224	10.936957	0.038495	0.205050
-48.200	-18.288	-0.316	0.947675	0.736077	0.596891	1.9404016	1.836967	0.031649	0.177000
-44.200	-18.288	-0.290	0.944481	0.730254	0.598975	1.9784034	1.647230	0.022102	0.132007
-40.200	-18.288	-0.264	0.941512	0.723349	0.602670	2.01128609	1.619152	0.030907	0.189478
-36.200	-18.288	-0.237	0.935484	0.715090	0.603136	6.75192223	2.288642	0.022025	0.153393
-32.200	-18.288	-0.211	0.936775	0.709926	0.611190	1.84317413	3.310369	0.042298	0.229148
-28.200	-18.288	-0.185	0.935638	0.704032	0.616243	7.80278623	1.981702	0.025797	0.190307
-24.200	-18.288	-0.159	0.923810	0.686950	0.617680	1.61040889	1.677873	0.018852	0.141047
-20.200	-18.288	-0.133	0.921883	0.675461	0.627392	1.61789846	6.771002	0.019355	0.129474
-16.200	-18.288	-0.106	0.927284	0.669050	0.642050	1.67647839	3.137244	0.017669	0.113255
-12.200	-18.288	-0.080	0.927679	0.659034	0.652887	1.58868081	2.603623	0.012513	0.100273
-8.200	-18.288	-0.054	0.942681	0.657056	0.675967	1.674882	7.203640	0.026097	0.168480
-4.200	-18.288	-0.028	0.960154	0.659346	0.697968	7.71322726	6.473200	0.014058	0.129399
-0.200	-18.288	-0.001	0.974568	0.664099	0.713274	8.3941479	1.594517	0.012010	0.104926
3.800	-18.288	0.025	1.005361	0.682453	0.738248	7.26518875	5.490883	0.016514	0.146491
7.800	-18.288	0.051	1.024370	0.702098	0.745915	7.39182295	1.552145	0.025692	0.181686
15.800	-18.288	0.104	1.065491	0.752484	0.754348	1.85312026	6.311634	0.021992	0.139693
19.800	-18.288	0.130	1.079234	0.775658	0.750400	1.83475744	1.491509	0.019336	0.141328
23.800	-18.288	0.156	1.088120	0.793274	0.744798	1.816549	3.327183	0.017131	0.105238
27.800	-18.288	0.182	1.091066	0.805788	0.735615	1.729842	5.365965	0.024890	0.170761
31.800	-18.288	0.209	1.094595	0.818935	0.726278	4.436874	4.327442	0.014268	0.108530
35.800	-18.288	0.235	1.091460	0.826357	0.713037	5.930994	1.613097	0.016477	0.115004
39.800	-18.288	0.261	1.087623	0.830518	0.702255	7.493679	5.169759	0.012453	0.106586
43.800	-18.288	0.287	1.075365	0.829819	0.683965	9.950360	5.423602	0.010955	0.088588
47.800	-18.288	0.314	1.072282	0.832705	0.675564	1.589201	6.888995	0.021740	0.161841
51.800	-18.288	0.340	1.073146	0.838860	0.669295	1.731213	7.499246	0.024864	0.165998
55.800	-18.288	0.366	1.064954	0.837182	0.658225	1.733444	5.106126	0.028776	0.195599
59.800	-18.288	0.392	1.053115	0.832638	0.644798	1.863852	1.535251	0.017744	0.132464
63.800	-18.288	0.419	1.051701	0.832610	0.642524	6.695260	3.298295	0.025766	0.201840
67.800	-18.288	0.445	1.037860	0.824197	0.630756	4.370900	1.509940	0.034340	0.237648
71.800	-18.288	0.471	1.032246	0.821848	0.624577	6.817174	4.776453	0.030456	0.219192
75.800	-18.288	0.497	1.021911	0.815082	0.616397	1.598196	1.558505	0.016467	0.139227
79.800	-18.288	0.523	1.013498	0.808177	0.611577	1.671285	1.609242	0.023410	0.182374

83.800	-18.288	0.550	1.004789	0.801236	0.606314	7.332908	1.530992	0.020392	0.152898
87.800	-18.288	0.576	0.997130	0.793668	0.603618	8.043512	1.623328	0.013883	0.133001
91.800	-18.288	0.602	0.984820	0.783199	0.597053	4.736848	1.400381	0.018410	0.160535
95.800	-18.288	0.628	0.977150	0.775599	0.594360	6.914147	1.333352	0.014037	0.123280
99.800	-18.288	0.655	0.970655	0.768276	0.593231	1.593212	1.381095	0.022290	0.210938
103.800	-18.288	0.681	0.967588	0.762843	0.595229	10.627858	1.480107	0.030102	0.220576
107.800	-18.288	0.707	0.960336	0.759780	0.587353	1.826875	1.472428	0.019635	0.149877
111.800	-18.288	0.733	0.957170	0.753633	0.590088	7.356506	1.513754	0.030764	0.199105
115.800	-18.288	0.760	0.952874	0.743795	0.595600	10.120818	1.547148	0.022813	0.182686
119.800	-18.288	0.786	0.949629	0.735410	0.600807	1.930259	1.497866	0.032707	0.234983
123.800	-18.288	0.812	0.944236	0.724521	0.605517	1.786554	1.509959	0.021046	0.157085
127.800	-18.288	0.838	0.940889	0.714174	0.612556	1.773330	8.107482	0.032607	0.209056
131.800	-18.288	0.865	0.930442	0.696823	0.616567	1.621278	1.595613	0.025609	0.201868
135.800	-18.288	0.891	0.931058	0.688394	0.626883	8.750182	1.579594	0.021673	0.160488
139.800	-18.288	0.917	0.928524	0.676286	0.636235	1.578520	1.472197	0.012631	0.110919
143.800	-18.288	0.943	0.938603	0.672883	0.654372	1.559548	1.520033	0.015414	0.130832
147.800	-18.288	0.970	0.949538	0.669614	0.673235	1.561273	1.433680	0.010895	0.098636
151.800	-18.288	0.996	0.974157	0.680045	0.697510	1.699996	8.384908	0.009328	0.063622
155.800	-18.288	1.022	0.999968	0.694265	0.719669	8.303617	6.926840	0.007365	0.059773
159.800	-18.288	1.048	1.023545	0.713132	0.734225	1.782872	7.531389	0.013581	0.086848
163.800	-18.288	1.075	1.047442	0.737786	0.743511	4.943625	6.602070	0.012880	0.101265
167.800	-18.288	1.101	1.063825	0.760198	0.744194	3.931791	6.107315	0.009389	0.076118
171.800	-18.288	1.127	1.072459	0.778220	0.737928	1.839308	5.519970	0.020988	0.133207
175.800	-18.288	1.153	1.083667	0.795848	0.735497	1.779054	6.516631	0.013556	0.093022
179.800	-18.288	1.179	1.088006	0.810293	0.726073	1.682038	2.882299	0.014580	0.100427
183.800	-18.288	1.206	1.096375	0.831406	0.714703	4.367634	6.105187	0.010664	0.096466
187.800	-18.288	1.232	1.093403	0.836724	0.703862	7.304148	6.966462	0.014300	0.116812
191.800	-18.288	1.258	1.089775	0.841982	0.691861	6.291503	3.606898	0.011810	0.097596
195.800	-18.288	1.284	1.084986	0.845212	0.680297	6.421455	7.144959	0.007680	0.074590
199.800	-18.288	1.311	1.083387	0.849424	0.672469	6.592517	8.008363	0.013954	0.119616
203.800	-18.288	1.337	1.077532	0.850861	0.661142	1.633288	1.488119	0.013818	0.114521
207.800	-18.288	1.363	1.069719	0.847956	0.652125	1.642973	8.006534	0.021227	0.155009
211.800	-18.288	1.389	1.067595	0.851457	0.644032	1.876101	7.020209	0.029296	0.184215
215.800	-18.288	1.416	1.059925	0.849404	0.633997	4.442071	6.100329	0.023730	0.190408
219.800	-18.288	1.442	1.055499	0.846984	0.629840	1.736022	5.529041	0.019798	0.146105
223.800	-18.288	1.468	1.045093	0.841335	0.619978	1.706446	1.571768	0.019689	0.147182

Station 3 Inlet Survey   0602s3I
Vref=   26.1753 m/s
Blade Spacing =   152.44 mm

x(mm)	z(mm)	x/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
-76.200	-6.096	-0.499869	0.987756	0.795506	0.585521	1.435442	1.729103	0.041186	0.121971
-72.200	-6.096	-0.473629	0.983484	0.795460	0.578351	1.514023	1.473961	0.041761	0.066923
-68.200	-6.096	-0.447389	0.968917	0.780652	0.573919	1.416095	1.444164	0.018798	0.100403
-64.199	-6.096	-0.421143	0.953739	0.768488	0.564842	1.344569	1.361551	0.027943	0.161560
-60.200	-6.096	-0.394909	0.946541	0.759804	0.564483	1.435300	1.371518	0.025310	0.145408
-56.200	-6.096	-0.368670	0.940612	0.754081	0.562240	1.438734	1.415023	0.028379	0.151557
-52.200	-6.096	-0.342430	0.921758	0.736656	0.554049	1.529571	1.527873	0.037039	0.185405
-48.200	-6.096	-0.316190	0.916715	0.729409	0.555279	1.576887	1.479586	0.036276	0.168524
-44.200	-6.096	-0.289950	0.918167	0.729978	0.556922	1.605215	1.453043	0.040624	0.044610
-40.200	-6.096	-0.263710	0.901010	0.708573	0.556544	1.611145	1.446207	0.048143	0.227688
-36.200	-6.096	-0.237470	0.894339	0.696305	0.561250	1.717869	1.647977	0.045884	0.142274
-32.200	-6.096	-0.211231	0.892685	0.688072	0.568719	1.603663	1.360690	0.114686	0.031982
-28.200	-6.096	-0.184991	0.875169	0.666655	0.567004	1.551753	1.437055	0.061920	0.194905
-24.200	-6.096	-0.158751	0.868800	0.651400	0.574885	1.727911	1.410206	0.058956	0.269116
-20.200	-6.096	-0.132511	0.863753	0.641055	0.578897	1.617137	1.312631	0.017995	0.020906
-16.200	-6.096	-0.106271	0.693505	0.681127	-0.130439	2.446792	0.002383	0.000440	0.099184
-12.200	-6.096	-0.080031	0.850389	0.599791	0.602839	1.425474	1.508943	0.023075	0.012522
-8.200	-6.096	-0.053792	0.850856	0.570328	0.631412	1.387459	1.337665	0.752827	0.193931
-4.200	-6.096	-0.027552	0.863776	0.529690	0.682304	1.372772	1.514994	0.014477	0.016014
-0.200	-6.096	-0.001312	0.922545	0.517637	0.763636	1.471150	1.244719	0.001923	0.011492
3.800	-6.096	0.024928	1.666476	1.611355	0.425061	0.000000	0.000000	0.000000	0.000000
7.800	-6.096	0.051168	1.092209	0.671014	0.861778	1.280584	1.570703	0.024169	0.040351
11.800	-6.096	0.077408	1.125794	0.741390	0.847203	1.282226	1.392311	0.286140	0.117777
15.800	-6.096	0.103647	1.134508	0.782352	0.821607	1.308210	1.305812	-0.025196	-0.007293
19.800	-6.096	0.129887	1.125424	0.799315	0.792258	1.415378	1.279672	0.016162	0.099828
23.800	-6.096	0.156127	1.131261	0.826164	0.772793	1.374415	1.330472	0.020374	0.008221
27.800	-6.096	0.182367	1.123181	0.835360	0.750807	1.578379	1.594091	0.034652	0.058728
31.800	-6.096	0.208607	1.116438	0.847436	0.726834	1.490912	1.269350	0.027048	0.026659
35.800	-6.096	0.234846	1.106333	0.852158	0.705547	1.594900	1.381390	0.019814	0.049761
39.800	-6.096	0.261086	1.098895	0.857633	0.687048	1.422779	1.334763	0.002186	0.001043
47.800	-6.096	0.313566	1.068355	0.845820	0.652665	1.436034	1.537803	0.014384	0.022562
51.800	-6.096	0.339806	1.061898	0.846542	0.641085	1.371085	1.484965	0.020337	0.057207
55.800	-6.096	0.366046	1.046070	0.840869	0.622258	1.293273	1.120438	0.021247	0.121769
59.800	-6.096	0.392285	1.040916	0.838863	0.616287	1.447140	1.431598	0.024301	0.046412
63.800	-6.096	0.418525	1.028630	0.832961	0.603535	1.461038	1.370187	0.037830	0.196680
67.800	-6.096	0.444765	1.018399	0.826726	0.594698	1.536371	1.497658	0.023106	0.067752
71.800	-6.096	0.471005	1.004294	0.817553	0.583279	1.455752	1.260734	0.031358	0.187393
75.800	-6.096	0.497245	0.997578	0.812869	0.578274	1.403972	1.261361	0.028085	0.178398

79.800	-6.096	0.523485	0.990468	0.808178	0.572601	1.367178	1.335723	0.034344	0.051834
83.800	-6.096	0.549724	0.984371	0.804289	0.567543	1.593473	1.402245	0.051780	0.062710
87.800	-6.096	0.575964	0.971741	0.791261	0.564078	1.357045	1.328905	0.062178	0.040716
91.800	-6.096	0.602204	0.952585	0.775666	0.552956	1.259449	1.312337	0.028279	0.183346
95.800	-6.096	0.628444	0.945036	0.767605	0.551249	1.330859	1.315550	0.032777	0.210128
99.800	-6.096	0.654684	0.937712	0.760721	0.548273	1.310722	1.253417	0.029866	0.033749
103.800	-6.096	0.680924	0.927030	0.749371	0.545736	1.275998	1.091319	0.007011	0.012690
107.800	-6.096	0.707163	0.918817	0.736584	0.549243	1.381780	1.333875	0.031100	0.192997
111.800	-6.096	0.733403	0.948513	0.731025	0.604387	1.380848	1.459068	0.053119	0.006816
115.800	-6.096	0.759643	0.914026	0.731052	0.548643	1.611245	1.193123	0.034051	0.192663
119.800	-6.096	0.785883	0.904807	0.716764	0.552200	1.566236	1.335639	0.037776	0.206035
123.800	-6.096	0.812123	0.893942	0.701188	0.554496	1.586823	1.415578	0.053823	0.275788
127.800	-6.096	0.838363	0.890561	0.689104	0.564127	1.422903	1.348896	0.036810	0.204666
131.800	-6.096	0.864602	0.873591	0.665830	0.565533	1.472763	1.441719	0.050944	0.262278
135.800	-6.096	0.890842	0.868491	0.647931	0.578328	1.445950	1.609607	0.029865	0.078402
139.800	-6.096	0.917082	0.862267	0.629609	0.589147	1.482294	1.406842	0.057971	0.068244
143.800	-6.096	0.943322	0.863707	0.603527	0.617857	1.279779	1.337167	0.044209	0.009884
147.800	-6.096	0.969562	0.860892	0.557965	0.655599	1.516459	1.569661	0.064305	0.080604
151.800	-6.096	0.995802	0.906183	0.540639	0.727235	1.344500	1.293453	0.051400	0.027688
155.800	-6.096	1.022041	1.562580	1.368286	0.754620	3.059009	9.420447	0.779192	0.394649
159.800	-6.096	1.048281	1.040072	0.669585	0.795865	1.544854	6.987478	0.270218	0.201058
163.800	-6.096	1.074521	1.116442	0.738402	0.837377	1.330874	1.290440	0.004129	0.003098
167.800	-6.096	1.100761	1.131062	0.779536	0.819528	1.418764	1.472291	0.000990	0.001719
171.800	-6.096	1.127001	1.140751	0.816655	0.796484	1.320948	1.335170	-0.013312	-0.005625
175.800	-6.096	1.153241	1.138550	0.833075	0.776071	1.414087	1.361035	0.005590	0.008236
179.800	-6.096	1.179480	1.137259	0.854477	0.750486	1.420816	1.299647	0.004111	0.002067
183.800	-6.096	1.205720	1.128480	0.859367	0.731399	1.537236	1.589799	0.021249	0.043487
187.800	-6.096	1.231960	1.125519	0.870603	0.713329	1.501434	1.484010	0.015604	0.046171
191.800	-6.096	1.258200	1.112476	0.868659	0.695010	1.405768	1.457888	-0.011659	-0.019082
195.800	-6.096	1.284440	1.108832	0.875509	0.680435	1.277945	1.377385	0.026463	0.009159
199.800	-6.096	1.310680	1.095552	0.871360	0.664050	1.283068	1.398436	0.018357	0.037003
203.800	-6.096	1.336919	1.086341	0.871188	0.648978	1.205515	1.215257	0.020453	0.020269
207.800	-6.096	1.363159	1.076767	0.868731	0.636184	1.259756	1.235908	0.003063	0.003769
211.800	-6.096	1.389399	1.064274	0.861866	0.624394	1.215438	1.312295	0.014308	0.037519
215.800	-6.096	1.415639	1.053474	0.857984	0.611286	1.370510	1.263963	0.003831	0.005341
219.800	-6.096	1.441879	1.037822	0.852495	0.591882	1.552094	1.248712	0.036230	0.216211

Station 11 Wake Survey   0602s11i

Vref=   26.1984 m/s

Blade Spacing =   152.44 mm

x(mm)	z(mm)	x/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
-14.220	128.020	-0.093283	0.827978	0.813908	0.151988	1.570396	2.026693	-0.268373	-0.046831
-6.720	128.020	-0.044083	0.816783	0.805080	0.137774	1.499501	1.775127	0.108659	0.024114
0.780	128.020	0.005117	0.806950	0.796404	0.130025	1.350900	2.448263	0.045092	0.022773
8.280	128.020	0.054316	0.913388	0.804045	0.433339	2.096749	52.050567	1.302460	0.073509
15.780	128.020	0.103516	0.818516	0.813962	0.086238	1.766981	2.648953	-0.169167	-0.036429
23.280	128.020	0.152716	0.829352	0.825993	0.074571	1.641207	3.218966	0.109838	0.034397
30.780	128.020	0.201916	0.867740	0.865614	0.060700	1.731470	3.137321	0.028696	0.014491
38.280	128.020	0.251115	1.762806	1.184527	-1.305519	15.628762	0.004184	-0.001394	-0.310680
45.780	128.020	0.300315	0.769814	0.769803	0.004046	6.762679	0.641181	-1.734370	-0.113217
53.280	128.020	0.349515	0.884096	0.882321	0.056007	1.874941	4.239131	-0.027473	-0.004575
60.780	128.020	0.398714	0.880371	0.877939	0.065386	1.904250	1.798531	0.446369	0.207103
68.280	128.020	0.447914	0.879309	0.873580	0.100218	1.714942	2.005529	-0.606074	-0.080322
75.780	128.020	0.497114	0.871339	0.863694	0.115184	1.803358	1.869375	0.299826	0.051998
83.280	128.020	0.546313	0.867931	0.860350	0.114469	1.779566	1.470146	0.053236	0.039945
90.780	128.020	0.595513	0.864633	0.852823	0.142417	1.573740	1.743503	0.049031	0.009528
98.280	128.020	0.644713	0.843872	0.833539	0.131671	2.058276	1.599434	0.021927	0.030381
105.780	128.020	0.693912	0.840235	0.827619	0.145068	1.576639	1.605178	0.271758	0.064695
113.280	128.020	0.743112	0.837654	0.825917	0.139734	1.697358	1.413410	0.029597	0.018866
120.780	128.020	0.792312	0.820146	0.806950	0.146530	1.616854	1.789384	0.135141	0.063715
128.280	128.020	0.841511	0.820306	0.809149	0.134837	1.712604	1.474836	0.083210	0.153322
135.780	128.020	0.890711	0.819115	0.807828	0.135527	1.696778	1.945991	0.014293	0.003763
143.280	128.020	0.939911	0.812511	0.801686	0.132187	1.604992	1.860943	0.178180	0.035172
150.780	128.020	0.989110	0.800369	0.793774	0.102543	2.159152	1.491220	0.014985	0.017802
158.280	128.020	1.038310	0.805202	0.799156	0.098477	1.529744	2.109722	-0.119963	-0.022331
165.780	128.020	1.087510	0.808152	0.804015	0.081678	1.732427	2.485050	0.329032	0.049331
173.280	128.020	1.136710	0.812019	0.810004	0.057176	1.576599	2.966866	0.055879	0.024362
180.780	128.020	1.185909	0.829948	0.829409	0.029858	1.559008	1.760630	0.055707	0.096200
188.280	128.020	1.235109	0.137794	0.136319	0.020108	15.696681	112.103678	7.271500	0.290463
195.780	128.020	1.284309	0.710604	0.710524	-0.010556	7.035484	0.933687	-1.602340	-0.092946
203.280	128.020	1.333508	0.868553	0.868061	0.029200	2.789739	17.909096	-0.107663	-0.014008
210.780	128.020	1.382708	0.872809	0.872141	0.034147	1.534218	1.243420	0.022584	0.084673
218.280	128.020	1.431908	0.881794	0.879882	0.058053	2.354142	1.234237	0.055879	0.102710
225.780	128.020	1.481107	0.879691	0.873847	0.101235	1.678669	1.904821	-0.022389	-0.004291
233.280	128.020	1.530307	0.874668	0.866454	0.119578	1.645014	1.903477	0.066810	0.011180
240.780	128.020	1.579507	0.879359	0.868164	0.139878	1.655015	1.819407	0.108627	0.017941

Station 12 Wake Survey 0602s12I
Vref= 26.1984 m/s
Blade Spacing = 152.44 mm

x(mm)	z(mm)	x/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
-14.220	134.110	-0.093283	0.860667	0.808385	0.295399	1.465950	9.229268	-0.190087	-0.028989
-6.720	134.110	-0.044083	0.817470	0.807019	0.130300	1.625118	1.655544	0.028127	0.031331
0.780	134.110	0.005117	0.811149	0.802205	0.120121	1.438587	1.990688	0.065384	0.193674
8.280	134.110	0.054316	0.811935	0.802526	0.123264	1.484400	2.426115	0.112017	0.039443
15.780	134.110	0.103516	0.819168	0.814451	0.087781	1.848045	1.890599	0.179260	0.118519
23.280	134.110	0.152716	0.848239	0.840609	0.113526	1.649232	3.134091	0.437776	0.034687
30.780	134.110	0.201916	0.853125	0.849842	0.074773	2.369835	2.260112	0.098304	0.069847
38.280	134.110	0.251115	0.182509	0.180535	-0.026769	13.783701	8.676148	-1.844170	-0.143014
45.780	134.110	0.300315	0.736430	0.736198	-0.018387	7.600431	2.473780	-1.189210	-0.159253
53.280	134.110	0.349515	0.862793	0.862312	0.028750	2.573252	1.693458	0.055596	0.071799
60.780	134.110	0.398714	0.860232	0.856873	0.075962	1.566055	3.064622	0.014311	0.008167
68.280	134.110	0.447914	0.860075	0.854896	0.094253	1.631398	1.927325	0.108711	0.027352
75.780	134.110	0.497114	0.855510	0.850468	0.092751	2.564433	1.366876	0.061643	0.088773
83.280	134.110	0.546313	0.852907	0.845777	0.110033	1.879604	1.384414	0.022888	0.016525
90.780	134.110	0.595513	0.846647	0.835219	0.138621	1.725320	2.478801	0.043253	0.024106
98.280	134.110	0.644713	0.850201	0.837788	0.144750	1.508956	1.717464	0.077938	0.016674
105.780	134.110	0.693912	0.841593	0.831383	0.130693	1.666623	1.463815	0.031418	0.040023
113.280	134.110	0.743112	0.829306	0.817401	0.140018	1.342254	1.586507	0.091738	0.028490
120.780	134.110	0.792312	0.823821	0.813340	0.131013	1.720726	1.475276	0.089052	0.118467
128.280	134.110	0.841511	0.830146	0.819661	0.131527	1.440972	1.610602	0.307491	0.100911
135.780	134.110	0.890711	0.821447	0.810473	0.133824	1.540215	1.762264	0.002412	0.000562
143.280	134.110	0.939911	0.814878	0.804282	0.130986	1.545886	2.440051	0.020121	0.013088
150.780	134.110	0.989110	0.811813	0.803790	0.113857	1.474616	1.836496	0.085138	0.022114
158.280	134.110	1.038310	0.808099	0.802232	0.097196	1.447684	1.990049	-0.575194	-0.132964
165.780	134.110	1.087510	0.813725	0.809194	0.085759	1.534055	2.093216	0.218608	0.041334
173.280	134.110	1.136710	0.815767	0.813989	0.053815	1.462038	1.835957	0.077408	0.083353
180.780	134.110	1.185909	0.823814	0.821974	0.055055	1.542656	2.827864	0.103742	0.036021
188.280	134.110	1.235109	0.407899	0.404109	0.055481	14.750491	14.828529	4.111950	0.203325
195.780	134.110	1.284309	0.703219	0.703211	0.003259	9.193217	0.655016	-1.636530	-0.090854
203.280	134.110	1.333508	0.853102	0.852304	0.036845	2.030316	4.974879	0.119953	0.017893
210.780	134.110	1.382708	0.855949	0.853174	0.068850	1.652232	2.226353	-0.407956	-0.067625
218.280	134.110	1.431908	0.857823	0.854209	0.078693	1.423966	1.816361	0.067599	0.024645
225.780	134.110	1.481107	0.866782	0.860125	0.107198	1.690438	1.943460	-0.370302	-0.053030
233.280	134.110	1.530307	0.865492	0.857239	0.119222	1.591508	1.717402	0.297647	0.048961
240.780	134.110	1.579507	0.869118	0.858259	0.136972	1.585478	1.835440	-0.130768	-0.019134

Station 9 Boundary Layer Survey   0609s9h

Vref=   71.2507 m/s

Blade Spacing =   152.44 mm

x(mm)	z(mm)	d/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
40.080	115.900	0.008	0.376558	-0.137280	0.350642	2.20504019	17.712584	0.440166	0.022199
40.579	115.939	0.012	0.240824	-0.120119	-0.208729	2.97917148	0.355668	-0.424226	-0.230945
41.078	115.978	0.016	0.150233	-0.147827	0.026784	2.85482641	3.854930	-0.030664	-0.003408
41.577	116.017	0.020	0.154073	-0.128755	0.084620	3.50919794	6.849558	1.260120	0.049874
42.076	116.056	0.024	0.154595	-0.149215	0.040425	3.02153676	6.401546	-0.141410	-0.012235
42.575	116.095	0.028	0.144347	-0.128729	0.065304	4.41566632	7.328453	2.545190	0.110348
43.074	116.134	0.032	0.162476	-0.122716	0.106484	3.91508177	8.483975	3.461870	0.108960
43.573	116.173	0.036	0.144681	-0.123694	0.075049	4.66134967	7.534642	0.770991	0.029104
44.072	116.212	0.040	0.238894	-0.112677	-0.210653	4.04337537	0.283175	0.093744	0.051559
44.571	116.251	0.044	0.143764	-0.117781	0.082438	5.01002165	8.606917	2.926910	0.098507
45.070	116.290	0.048	0.232253	-0.098015	-0.210558	4.416734	0.300763	0.060932	0.032755
45.569	116.329	0.051	0.140283	-0.111575	0.085031	5.10912642	8.114788	2.199200	0.071059
46.068	116.368	0.055	0.146066	-0.113620	0.091791	4.89507104	9.141210	2.826860	0.083132
46.567	116.407	0.059	0.117316	-0.055942	0.103119	4.15709826	9.463804	2.227210	0.056410
47.066	116.446	0.063	0.087648	-0.078686	0.038610	6.75670863	7.301579	-3.173820	-0.103909
47.565	116.485	0.067	0.142046	-0.106239	0.094289	5.38279155	8.839416	2.895410	0.081990
48.064	116.524	0.071	0.241826	0.029916	-0.239968	3.214167	0.001697	-0.000668	-0.241389
48.563	116.563	0.075	0.148779	-0.098914	0.111135	5.60155196	9.188202	3.276180	0.074891
49.062	116.602	0.079	0.147926	-0.093786	0.114395	5.46963974	9.012628	1.201690	0.027707
49.561	116.641	0.083	0.146472	-0.082824	0.120807	6.08450785	9.791646	6.111840	0.115921
50.060	116.680	0.087	0.140246	-0.081941	0.113819	6.05958892	10.336680	4.277550	0.080835
50.559	116.719	0.091	0.178516	-0.077754	0.160693	6.0894465	10.275170	5.409910	0.095830
51.058	116.758	0.095	0.146236	-0.064556	0.131215	6.83327231	10.717636	5.714060	0.091768
51.557	116.797	0.099	0.174108	0.005138	0.174031	2.793086	10.716803	4.991990	0.063552
52.056	116.836	0.103	0.183622	-0.045327	0.177941	6.989016	10.485245	1.728630	0.026390
52.555	116.875	0.107	0.153833	-0.031579	0.150557	6.666061	11.039465	0.058759	0.000744
53.054	116.914	0.111	0.186270	-0.019322	0.185266	7.385521	11.413321	3.644530	0.046075
53.553	116.953	0.115	0.022788	-0.000361	0.022785	0.450526	9.368376	-8.078050	-0.121060
54.052	116.992	0.119	0.190826	0.096430	0.164669	21.872045	12.236062	-1.672090	-0.013095
54.551	117.031	0.123	0.217323	0.133956	0.171128	20.729737	12.685165	-12.281700	-0.090446
55.050	117.070	0.127	0.218702	0.037707	0.215427	15.999758	11.427889	-2.856780	-0.031629
55.549	117.109	0.130	0.275680	0.172801	0.214801	21.697253	11.881722	-5.806750	-0.041637
56.048	117.148	0.134	0.311921	0.227180	0.213738	23.425389	12.481715	-5.421750	-0.034057
56.547	117.187	0.138	0.334641	0.246350	0.226486	22.975770	12.584434	-10.218900	-0.064674
57.046	117.226	0.142	0.340909	0.282922	0.190193	22.801770	12.944246	-20.570300	-0.126929
57.545	117.265	0.146	0.435542	0.363829	0.239428	23.593864	12.435498	-16.666900	-0.101056
58.044	117.304	0.150	0.388953	0.329549	0.206597	24.375490	13.011186	-12.318100	-0.068824
58.543	117.343	0.154	0.432025	0.374701	0.215046	24.106006	12.902585	-10.129000	-0.057514

59.042	117.382	0.158	0.488423	0.437353	0.217441	22.348427	13.566276	-14.717100	-0.082032
59.541	117.421	0.162	0.503392	0.453027	0.219476	22.531350	13.185839	-30.783500	-0.174160
60.040	117.460	0.166	0.596019	0.544804	0.241716	21.302836	12.613634	-15.872500	-0.096300
60.539	117.499	0.170	0.555004	0.505898	0.228246	22.530884	12.679783	-23.970600	-0.138716
61.038	117.538	0.174	0.579288	0.531648	0.230054	22.029371	13.001357	-35.905600	-0.200476
61.537	117.577	0.178	0.622182	0.565286	0.259927	20.539881	13.472758	-35.742200	-0.208824
62.036	117.616	0.182	0.642969	0.595864	0.241568	20.692079	12.628724	-28.725600	-0.180452
62.535	117.655	0.186	0.665217	0.609153	0.267294	18.728358	12.426508	-32.542200	-0.210086
63.034	117.694	0.190	0.705051	0.655341	0.260051	19.052334	11.880914	-24.717100	-0.161839
63.533	117.733	0.194	0.720566	0.675868	0.249833	17.365696	12.684188	-16.029800	-0.109645
64.032	117.772	0.198	0.729968	0.683597	0.256019	17.290778	12.367846	-31.190800	-0.217271
64.531	117.811	0.202	0.754877	0.703255	0.274357	16.697380	11.594722	-30.505100	-0.221736
65.030	117.850	0.206	0.767866	0.713027	0.284975	15.864574	11.708017	-36.069100	-0.266208
65.528	117.889	0.209	0.803988	0.758110	0.267703	12.645510	10.799767	-22.739300	-0.209984
66.028	117.928	0.213	0.797194	0.746751	0.279075	14.262712	12.079628	-26.349900	-0.211693
66.527	117.967	0.217	0.830354	0.784907	0.270939	10.963900	10.175578	-14.831700	-0.154883
67.026	118.006	0.221	0.836626	0.788182	0.280556	11.078367	11.057800	-28.560600	-0.258857
67.525	118.045	0.225	0.848117	0.802252	0.275122	10.087193	11.096146	-20.960700	-0.215046
68.024	118.084	0.229	0.860356	0.814591	0.276866	7.087400	8.606409	-22.757800	-0.260269
68.523	118.123	0.233	0.864706	0.821155	0.270960	9.385068	9.871945	-18.167600	-0.225664
69.022	118.162	0.237	0.881805	0.838729	0.272239	5.596635	8.107079	-10.451400	-0.143323
69.521	118.201	0.241	0.889755	0.850679	0.260786	4.540620	6.862302	-10.958600	-0.170282
70.020	118.240	0.245	0.911715	0.874230	0.258740	3.481665	6.542679	-13.529900	-0.276220
70.519	118.279	0.249	0.904953	0.864606	0.267197	3.581424	7.008293	-14.904700	-0.289111
71.018	118.318	0.253	0.903077	0.866059	0.255916	3.630501	6.527882	-9.710790	-0.171687
71.517	118.357	0.257	0.916145	0.880418	0.253350	3.015088	6.655745	-5.116570	-0.115355
72.016	118.396	0.261	0.919247	0.881669	0.260146	3.058826	5.922073	-9.102500	-0.201429
72.515	118.435	0.265	0.919707	0.883840	0.254343	4.234052	6.893223	-3.479440	-0.079021

Station 8 Boundary Layer Survey   0610s8h
Vref=   71.6094 m/s
Blade Spacing =   152.44 mm

x(mm)	z(mm)	d/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
41.754	91.506	0.008	0.177883	-0.125890	-0.125675	0.95579426	0.3204459	-0.008223	-0.025799
42.253	91.539	0.012	0.139856	-0.121790	0.068752	4.66759703	11.459126	3.812990	0.101723
42.752	91.572	0.016	0.144704	-0.143304	0.020087	2.95826358	3.2149042	0.000871	0.000139
43.251	91.605	0.020	0.259344	-0.101233	-0.238770	0	0	0.000000	0.000000
43.750	91.638	0.024	0.152409	-0.148465	0.034443	2.99578909	5.6331696	0.077649	0.006890
44.249	91.671	0.028	0.147296	-0.143513	0.033166	3.17205972	3.9111049	-0.650391	-0.049986
44.748	91.704	0.032	0.152124	-0.147921	0.035511	3.04842013	6.6482518	0.262316	0.020970
45.247	91.737	0.036	0.100867	-0.099906	0.013896	6.58055202	5.1116754	-2.921730	-0.159017
45.746	91.770	0.039	0.145382	-0.144341	0.017361	3.28183234	5.5780959	0.222779	0.020315
46.245	91.803	0.043	0.132883	-0.128022	0.035613	4.33951925	7.0490161	-0.664446	-0.030205
46.744	91.836	0.047	0.125350	-0.118246	0.041600	4.82350544	6.4448761	-1.732650	-0.070072
47.243	91.869	0.051	0.117935	-0.109867	0.042871	5.44320389	6.6559657	-1.390520	-0.054699
47.742	91.902	0.055	0.113005	-0.098099	0.056096	5.18875255	7.4788106	0.614029	0.016848
48.241	91.935	0.059	0.093707	-0.074758	0.056500	6.5357114	7.5900384	0.453687	0.010690
48.740	91.968	0.063	0.081603	-0.050910	0.063775	6.63911017	8.3382816	-0.334696	-0.006701
49.239	92.001	0.067	0.123764	0.041985	0.116425	27.1181708	9.3541139	1.208450	0.013682
49.738	92.034	0.071	0.143424	0.108085	0.094276	19.217749	8.8068933	-1.827940	-0.019722
50.237	92.066	0.075	0.115052	0.031899	0.110542	16.3306979	10.288412	-2.077370	-0.026514
50.736	92.099	0.079	0.244140	0.212624	0.119979	21.307721	9.2131122	-2.056670	-0.018654
51.235	92.132	0.083	0.318687	0.289050	0.134209	21.587789	9.556765	1.113470	0.009119
51.734	92.165	0.087	0.392948	0.346129	0.186020	22.0701285	9.8150992	-1.289960	-0.009872
52.233	92.198	0.091	0.449479	0.416578	0.168802	22.0764257	9.2980623	8.513650	0.067565
52.732	92.231	0.094	0.496372	0.458109	0.191105	21.2745293	9.3797866	3.492590	0.026715
53.231	92.264	0.098	0.556195	0.515974	0.207663	20.854334	9.7026027	-1.420700	-0.010460
53.730	92.297	0.102	0.625167	0.574454	0.246649	20.2169289	9.3988631	-6.177310	-0.048016
54.229	92.330	0.106	0.691838	0.636662	0.270741	16.1533303	7.7923048	-0.213432	-0.001903
54.728	92.363	0.110	0.753553	0.699602	0.279998	14.7273977	7.0007099	7.871020	0.076162
55.227	92.396	0.114	0.744285	0.684737	0.291709	16.0905644	7.0791335	7.333740	0.069331
55.726	92.429	0.118	0.817213	0.754448	0.314075	10.3480902	6.0801719	-1.155770	-0.013177
56.225	92.462	0.122	0.840406	0.776374	0.321755	9.25756516	6.3207209	1.178410	0.013921

Station 7 Boundary Layer Survey   0611s7l

Vref=   26.0683 m/s

Blade Spacing =   152.44 mm

x(mm)	z(mm)	d/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
41.410	60.810	0.008	1.169835	-1.158307	0.163823	3.18821745	4.3303917	0.108889	0.116061
41.905	60.735	0.012	1.254090	1.230897	0.240068	3.38784787	2.4364003	-0.845687	-0.086397
42.400	60.660	0.016	1.289635	1.269066	0.229418	1.95528846	1.6757405	0.048495	0.039879
42.895	60.585	0.020	1.296655	1.271080	0.256267	2.38163568	1.695697	-0.414316	-0.055700
43.390	60.510	0.024	1.289144	1.267279	0.236425	1.85869225	1.4290975	0.035180	0.071757
43.885	60.435	0.028	1.279309	1.256549	0.240240	1.66193703	1.4860458	-0.001399	-0.003351
44.380	60.360	0.032	1.271870	1.248635	0.242002	1.71722318	1.4142089	0.019454	0.039710
44.875	60.285	0.036	1.266128	1.233813	0.284233	1.57807114	2.0566557	0.129422	0.027977
45.370	60.210	0.040	1.264973	1.233909	0.278615	1.45438341	1.9447469	-0.055622	-0.024869
45.865	60.135	0.044	1.252452	1.218595	0.289247	1.58508744	3.3483533	-0.072154	-0.031597
46.360	60.060	0.048	1.242724	1.211468	0.276959	1.52539516	1.9006392	0.025270	0.008557
46.855	59.985	0.051	1.225120	1.192180	0.282181	2.25032278	1.6169629	-0.319335	-0.027786
47.350	59.910	0.055	1.236214	1.208886	0.258493	1.47398247	1.4758699	0.007123	0.020688
47.845	59.835	0.059	1.235067	1.207091	0.261393	1.63034485	1.5974589	-0.021831	-0.033695
48.340	59.760	0.063	1.231519	1.198667	0.282556	1.60057948	1.7821216	-0.717941	-0.193054
48.835	59.685	0.067	1.235090	1.197174	0.303675	1.32341638	1.8404828	-0.126916	-0.033272
49.330	59.610	0.071	1.228780	1.192494	0.296416	1.50654964	1.9290805	-0.054633	-0.018275
49.825	59.535	0.075	1.215269	1.184446	0.271969	1.51230096	1.5462494	0.018547	0.027199
50.320	59.460	0.079	1.213520	1.181489	0.276973	1.82095753	1.5282667	0.014797	0.037439
50.815	59.385	0.083	1.209223	1.171499	0.299678	2.40798204	1.8015189	-1.026970	-0.122523
51.310	59.310	0.087	1.206811	1.167840	0.304210	2.09725355	1.6325547	-0.004498	-0.000590
51.805	59.235	0.091	1.202576	1.168707	0.283395	1.54848979	1.4639145	0.037012	0.073092
52.300	59.160	0.095	1.196296	1.156190	0.307166	1.52793938	1.8533002	0.004514	0.001434
52.795	59.085	0.099	1.187235	1.152726	0.284178	1.4956501	1.5638612	0.034938	0.066455
53.290	59.010	0.103	1.178623	1.143772	0.284503	1.50833831	1.569771	0.020752	0.037307
53.785	58.935	0.107	1.171265	1.135552	0.287029	2.33033359	1.5816946	-0.019327	-0.014357
54.280	58.860	0.111	1.166551	1.130358	0.288323	2.38230768	1.496253	0.006642	0.005242
54.775	58.785	0.115	1.162047	1.125432	0.289410	1.49754489	1.7442002	0.021449	0.080227
55.270	58.710	0.119	1.165803	1.124116	0.308958	1.58036133	2.2502153	0.001826	0.001232
55.765	58.635	0.123	1.163973	1.125846	0.295480	1.48512642	1.554255	0.011792	0.034770
56.260	58.560	0.127	1.158300	1.111910	0.324525	1.37157418	1.6776797	-0.466145	-0.091027

Station 6 Boundary Layer Survey   0611s6l
Vref=   26.0795 m/s
Blade Spacing =   152.44 mm

x(mm)	z(mm)	d/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
29.730	29.966	0.008	0.903100	-0.598577	0.676236	7.65837917	1.189337	-0.515227	-0.831681
30.159	29.709	0.012	1.257294	1.113112	-0.584612	2.23523987	5.2020802	-1.450740	-0.162974
30.588	29.452	0.016	1.346395	1.137932	0.719646	1.999506	1.5532329	0.044893	0.003747
31.017	29.195	0.020	1.344623	1.119876	0.744240	2.11085383	1.7617271	-5.376320	-0.247088
31.446	28.938	0.024	1.469790	0.981687	-1.093882	33.9096206	3.3027037	-2.591990	-0.340285
31.875	28.681	0.028	1.328764	1.142031	0.679246	1.31925148	1.2851065	0.028457	0.030867
32.304	28.424	0.031	1.348354	1.125259	0.742863	1.99551234	1.8400052	-1.866420	-0.090226
32.732	28.167	0.035	1.319289	1.134857	0.672770	1.4605608	1.4057996	0.052338	0.039818
33.162	27.910	0.039	1.317648	1.134251	0.670577	1.48897671	1.4943261	0.011110	0.009563
33.591	27.653	0.043	1.323775	1.133730	0.683403	1.76539832	1.3452235	-0.227492	-0.072782
34.020	27.396	0.047	1.565632	1.124604	-1.089250	1.57428762	2.0624516	0.085817	0.139018
34.449	27.139	0.051	1.311191	1.129546	0.665841	1.32060893	1.4860372	0.017104	0.023344
34.878	26.882	0.055	1.330677	1.126759	0.707897	1.7001322	1.7535883	-0.494549	-0.081916
35.307	26.625	0.059	1.463280	0.986330	-1.080899	1.6384721	3.3522238	1.300420	0.196087
35.736	26.368	0.063	1.296670	1.115489	0.661090	1.69086965	1.4776025	0.039661	0.080825
36.165	26.111	0.067	1.553515	1.108507	-1.088403	1.97889504	1.8468889	-0.081953	-0.329686
36.594	25.854	0.070	1.286846	1.103948	0.661270	1.55260287	1.5075774	0.376823	0.188840
37.023	25.597	0.074	1.290190	1.095117	0.682137	1.66467618	1.5510847	-0.175314	-0.023824
37.452	25.340	0.078	1.276777	1.093365	0.659322	1.94165138	1.5825058	0.058637	0.016778
37.881	25.083	0.082	1.269629	1.093867	0.644529	1.87050134	1.5022623	0.406696	0.204212
38.310	24.826	0.086	1.262551	1.086236	0.643525	1.72053315	1.402253	0.502355	0.240579
38.739	24.569	0.090	1.257355	1.076727	0.649307	1.62895864	1.3680442	0.061978	0.020542
39.168	24.312	0.094	1.257378	1.077045	0.648824	1.88739245	1.5891317	-0.931693	-0.277062
39.597	24.055	0.098	1.263314	1.079131	0.656845	1.73525363	1.5752992	-0.291428	-0.071626
40.026	23.798	0.102	1.247907	1.071424	0.639786	1.95927006	1.5456783	-0.004242	-0.003136
40.455	23.541	0.106	1.250488	1.071037	0.645446	1.40465384	1.5948317	0.002007	0.001554
40.884	23.284	0.109	1.249307	1.069507	0.645695	1.63181054	2.0277532	0.049217	0.049023
41.313	23.027	0.113	1.242900	1.061328	0.646822	1.49112319	1.6323982	0.004444	0.001563
41.742	22.770	0.117	1.186583	1.049595	-0.553473	2.00305666	8.3271678	0.390191	0.047731
42.171	22.513	0.121	1.233183	1.059487	0.631055	1.99480276	1.599693	-0.005213	-0.002987
42.600	22.256	0.125	1.225614	1.053763	0.625871	1.44985079	1.9307178	0.042909	0.081662
43.029	21.999	0.129	1.224264	1.050818	0.628172	1.55594576	1.5675895	0.034523	0.033281
43.458	21.742	0.133	1.223018	1.049771	0.627501	1.67647362	1.5848969	-0.007689	-0.010449
43.887	21.485	0.137	1.214973	1.042516	0.623954	2.18619807	1.509294	0.067822	0.065771
44.316	21.228	0.141	1.215242	1.042424	0.624636	1.5792934	1.5523584	0.041381	0.121866
44.745	20.971	0.145	1.214962	1.039660	0.628682	1.31102103	1.4882212	0.084123	0.071283

Station 7 Boundary Layer Survey   0709s7h
Vref=   72.3965 m/s
Blade Spacing =   152.44 mm

x(mm)	z(mm)	d/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
41.905	60.735	0.012	0.394953	0.357133	0.168650	13.5010311	6.2294742	14.884900	0.181671
42.400	60.660	0.016	0.630394	0.597750	0.200225	13.7994747	3.8217775	7.327230	0.183793
42.895	60.585	0.020	0.839713	0.799773	0.255891	12.2885194	4.066489	-1.330670	-0.037737
43.390	60.510	0.024	1.023798	0.973787	0.316068	5.13392406	2.568019	-2.415370	-0.125086
43.885	60.435	0.028	1.084483	1.030734	0.337182	1.68851675	1.9041378	-1.388280	-0.229973
44.380	60.360	0.032	1.090862	1.035261	0.343822	1.47063019	1.6795251	-0.510201	-0.076114
44.875	60.285	0.036	1.094803	1.037078	0.350804	1.18649992	1.5721854	-0.558277	-0.163738
45.370	60.210	0.040	1.097121	1.038681	0.353293	1.22122969	1.48185	-0.609838	-0.152260
45.865	60.135	0.044	1.098868	1.038021	0.360585	1.1882955	1.4031665	-0.229306	-0.031515
46.360	60.060	0.047	1.100736	1.040249	0.359860	1.12536237	1.6174013	-0.517962	-0.231378
46.855	59.985	0.051	1.094016	1.031432	0.364715	1.34112005	1.4899124	-0.783509	-0.076526
47.350	59.910	0.055	1.103364	1.040280	0.367740	1.19093286	1.6005339	-0.436989	-0.103281
47.845	59.835	0.059	1.094068	1.030750	0.366795	1.34208817	1.662566	-0.447014	-0.044116
48.340	59.760	0.063	1.106932	1.042146	0.373137	1.22418769	1.8654528	-0.411112	-0.182022
48.835	59.685	0.067	1.087670	1.022110	0.371909	1.33069547	1.6198044	-1.145140	-0.093546
49.330	59.610	0.071	1.089416	1.023265	0.373839	1.18336497	1.4725013	-0.611686	-0.056708
49.825	59.535	0.075	1.090643	1.023703	0.376212	1.32967733	1.5843134	-0.750339	-0.049069
50.320	59.460	0.079	1.095757	1.027674	0.380223	1.27119162	1.6302737	-0.728841	-0.062736
50.815	59.385	0.083	1.099288	1.033017	0.375913	1.42668916	1.6471765	-0.408518	-0.090435
51.310	59.310	0.087	1.088740	1.021203	0.377493	1.46607942	1.678011	-0.488848	-0.054278
51.805	59.235	0.091	1.089003	1.020168	0.381031	1.19845268	1.5304104	-0.668331	-0.072506
52.300	59.160	0.095	1.086116	1.016172	0.383461	1.71768643	1.6931585	-0.732146	-0.083592
52.795	59.085	0.099	1.100329	1.029601	0.388133	1.25022375	1.6375193	-0.112767	-0.018007
53.290	59.010	0.103	1.088606	1.017801	0.386194	1.71080065	1.7194867	0.361144	0.040315
53.785	58.935	0.107	1.087601	1.016327	0.387242	1.4460602	1.7687339	-0.635605	-0.066483
54.280	58.860	0.111	1.101283	1.030311	0.388950	1.11167451	1.5160989	-0.223909	-0.108808
54.775	58.785	0.114	1.100089	1.028939	0.389203	1.46394389	1.6848032	-0.262042	-0.111702
55.270	58.710	0.118	1.084145	1.011165	0.391047	1.36408168	1.5512816	-0.997465	-0.105138
55.765	58.635	0.122	1.068197	0.992360	0.395306	1.46347318	1.5789605	-1.226540	-0.060497
56.260	58.560	0.126	1.097943	1.023786	0.396663	1.23081562	1.8463385	-0.046243	-0.016350

Station 6 Boundary Layer Survey   0709s6h

Vref=   72.5336 m/s

Blade Spacing =   152.44 mm

x(mm)	z(mm)	d/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
30.589	29.451	0.013	1.332245	1.122940	0.716855	1.25362805	1.5716624	0.288702	0.017838
31.018	29.194	0.017	1.333516	1.124774	0.716342	0.9850826	1.2214356	0.199228	0.015666
31.447	28.937	0.020	1.333743	1.127291	0.712802	0.83294994	1.2482875	-0.307773	-0.033521
31.876	28.680	0.024	1.344731	1.143004	0.708410	0.78256231	1.4658837	0.121551	0.102424
32.305	28.423	0.027	1.343161	1.141959	0.707116	0.79799184	1.5092481	0.196380	0.160877
32.734	28.166	0.030	1.321280	1.116864	0.705969	0.97119295	1.2864033	-0.757168	-0.059958
33.163	27.909	0.034	1.328411	1.125372	0.705841	0.91635123	1.2770502	-0.120128	-0.014256
33.592	27.652	0.037	1.311857	1.108664	0.701305	0.95274493	1.2644395	-0.192063	-0.017162
34.021	27.395	0.041	1.333706	1.135060	0.700292	0.83729983	1.3360661	0.058660	0.032589
34.450	27.138	0.044	1.311141	1.109316	0.698935	0.9822374	1.3449124	1.193240	0.101984
34.879	26.881	0.047	1.310234	1.109897	0.696308	1.0237598	1.281965	0.348614	0.035742
35.308	26.624	0.051	1.304015	1.105927	0.690927	1.14345158	1.3362315	0.396629	0.039925
35.737	26.367	0.054	1.314989	1.119871	0.689264	1.03185841	1.3468426	0.202836	0.098277
36.166	26.110	0.058	1.296300	1.099189	0.687151	1.23469647	1.3992102	0.687139	0.064709
36.595	25.853	0.061	1.291705	1.096215	0.683241	1.25138391	1.4644442	2.808950	0.140633
37.024	25.596	0.064	1.288388	1.090533	0.686061	1.37406095	1.3942345	0.274200	0.028591
37.453	25.339	0.068	1.280780	1.084725	0.681007	1.43248767	1.3973722	-0.057902	-0.006134
37.882	25.082	0.071	1.279317	1.083787	0.679748	1.42359807	1.5925826	0.609507	0.028546
38.311	24.825	0.075	1.277926	1.082308	0.679491	1.41536672	1.4562843	0.207221	0.021190
38.740	24.568	0.078	1.264617	1.069459	0.674919	1.48717877	1.434034	0.597780	0.052390
39.169	24.311	0.081	1.285282	1.093190	0.675931	1.35006768	1.5980831	0.200981	0.095680
39.598	24.054	0.085	1.270559	1.077148	0.673849	1.53764988	1.5299407	1.325640	0.083857
40.027	23.797	0.088	1.275344	1.084160	0.671639	1.39530259	1.5355886	0.154095	0.086223
40.456	23.540	0.092	1.254896	1.061394	0.669483	1.86050626	1.5442693	0.536117	0.069141
40.885	23.283	0.095	1.245223	1.050168	0.669124	1.80266669	1.4137929	0.318957	0.030434
41.314	23.026	0.098	1.253352	1.059830	0.669065	1.67941754	1.4337864	-0.208999	-0.024912
41.743	22.769	0.102	1.039802	1.036753	0.079576	4.68583156	1.5285372	-0.012050	-0.001684
42.172	22.512	0.105	1.242284	1.050406	0.663262	1.72287527	1.4234935	1.317870	0.154549
42.601	22.255	0.109	1.240286	1.048521	0.662505	1.73456823	1.3792103	0.025983	0.003331
43.030	21.998	0.112	1.232319	1.039918	0.661197	1.79661442	1.2915955	0.839449	0.108799

Station 5 Boundary Layer Survey   0709s5h
Vref=   71.3851 m/s
Blade Spacing =   152.44 mm

x(mm)	z(mm)	d/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
11.005	4.595	0.016	1.338003	0.880179	1.007738	1.32390436	1.4852753	0.070962	0.008890
11.336	4.220	0.020	1.326613	0.878671	0.993901	1.34046496	1.512856	0.604253	0.077529
11.667	3.845	0.024	1.312924	0.874446	0.979343	1.38088981	1.5286272	1.861080	0.127458
11.998	3.470	0.028	1.302370	0.873136	0.966333	1.41940479	1.4857471	0.222131	0.023189
12.329	3.095	0.032	1.293260	0.866350	0.960186	1.38431509	1.5034502	0.957550	0.095169
12.660	2.720	0.036	1.286732	0.866885	0.950888	1.35124893	1.6325122	0.078385	0.008658
12.991	2.345	0.039	1.272522	0.860081	0.937854	1.34362784	1.4846697	0.308505	0.039188
13.322	1.970	0.043	1.265742	0.859409	0.929257	1.43106215	1.4955275	1.307240	0.125566
13.653	1.595	0.047	1.255960	0.853167	0.921705	1.40873202	1.4814379	0.900975	0.096893
13.984	1.220	0.051	1.249240	0.845689	0.919461	1.48086079	1.5743651	1.379460	0.133497
14.315	0.845	0.055	1.241031	0.847136	0.906929	1.41074433	1.5186522	0.497378	0.056822
14.646	0.470	0.059	1.237730	0.844879	0.904518	1.33960697	1.8023966	0.113468	0.034749
14.977	0.095	0.063	1.228650	0.841019	0.895694	1.35440165	1.499114	0.730769	0.123620
15.308	-0.280	0.067	1.224397	0.840877	0.889985	1.41294271	1.5450592	0.275813	0.058029
15.639	-0.655	0.071	1.214765	0.838412	0.879043	1.31959288	1.4608646	0.305650	0.062039
15.970	-1.030	0.075	1.215196	0.837535	0.880476	1.43452947	1.5351899	0.994028	0.121832
16.301	-1.405	0.078	1.205361	0.835174	0.869124	1.33171046	1.4904259	0.176459	0.051449
16.632	-1.780	0.082	1.203881	0.835565	0.866695	1.43532542	1.4634403	1.027410	0.170972
16.963	-2.155	0.086	1.195639	0.833527	0.857196	1.41006076	1.2990544	0.234003	0.107613
17.294	-2.530	0.090	1.184349	0.830767	0.844103	1.40409627	1.4962153	0.041425	0.008865
17.625	-2.905	0.094	1.184270	0.829057	0.845672	1.44005502	1.4758419	0.595621	0.116999
17.956	-3.280	0.098	1.178851	0.826992	0.840104	1.7536198	1.2927687	0.000472	0.000151
18.287	-3.655	0.102	1.178277	0.830474	0.835852	1.46571262	1.4571747	-0.042761	-0.009829
18.618	-4.030	0.106	1.175995	0.829873	0.833231	1.52435307	1.4501141	0.025029	0.005421
18.949	-4.405	0.110	1.171279	0.831123	0.825305	1.47672276	1.3065655	0.183741	0.095847
19.280	-4.780	0.114	1.171420	0.832688	0.823925	1.65611606	1.4626984	0.172518	0.092177
19.611	-5.155	0.117	1.163757	0.829289	0.816462	1.50889189	1.2780075	0.175900	0.088397
19.942	-5.530	0.121	1.165117	0.831116	0.816544	1.4919613	1.4529508	0.169639	0.052769
20.273	-5.905	0.125	1.159493	0.829767	0.809883	1.57947807	1.4877556	0.295704	0.049276
20.604	-6.280	0.129	1.156281	0.829441	0.805612	1.52976218	1.4054145	0.346131	0.098789

Station 9 Boundary Layer Survey   0713s9i

Vref=   27.1060 m/s

Blade Spacing =   152.44 mm

x(mm)	z(mm)	d/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
39.706	115.870	0.005	0.241569	0.228476	-0.078451	11.9655878	18.36738667	-2.573930	-0.124281
40.205	115.909	0.009	0.237533	0.237460	-0.005913	12.3078399	3.077271443	-2.079630	-0.158203
40.704	115.948	0.013	0.295851	0.295848	0.001392	13.0678791	0.5418776	-2.371110	-0.104259
41.203	115.987	0.017	0.378359	0.376751	-0.034853	14.6216506	8.765002827	-3.428180	-0.269851
41.702	116.026	0.021	0.382764	0.382635	-0.010059	16.6141578	3.478458815	-4.639090	-0.195515
42.201	116.065	0.025	0.470778	0.469841	-0.029698	14.8924443	7.614335013	-2.511350	-0.167291
42.700	116.104	0.028	0.491452	0.491334	0.010767	17.5235262	4.643042013	-2.747510	-0.089508
43.199	116.143	0.032	0.580683	0.579931	-0.029585	16.4029903	7.238698253	-3.233790	-0.219953
43.698	116.182	0.036	0.608825	0.608747	-0.009528	15.573152	2.777103773	-4.312080	-0.218212
44.197	116.221	0.040	0.675537	0.618306	0.272120	18.4462294	54.78316334	-7.035170	-0.092925
44.696	116.260	0.044	0.742644	0.742518	0.013745	12.766562	4.466769746	-3.467540	-0.138636
45.195	116.299	0.048	0.762355	0.761776	0.029777	13.6232209	94.96782041	-3.771540	-0.151389
45.694	116.338	0.052	0.878901	0.878901	0.000321	6.19057682	0.106606063	-1.178140	-0.160485
46.193	116.377	0.056	0.854899	0.854877	0.006089	10.3036633	11.93011215	-2.420850	-0.259599
46.692	116.416	0.060	0.884494	0.884358	0.015458	8.65474901	9.855007867	-1.271200	-0.175547
47.191	116.455	0.064	0.926658	0.926433	0.020318	7.10882814	6.993728522	-0.719644	-0.126043
47.690	116.494	0.067	0.946809	0.946543	0.022384	4.51888243	5.302430448	-0.553585	-0.141479
48.189	116.533	0.071	0.954844	0.954405	0.028906	4.20863941	4.752348524	-0.488399	-0.144263
48.688	116.572	0.075	0.965543	0.963407	0.064223	2.48354667	7.160333227	-0.521250	-0.053863
49.187	116.611	0.079	0.980949	0.979034	0.061242	2.89828378	6.435961109	-0.727757	-0.083490
49.686	116.650	0.083	0.970014	0.969372	0.035246	2.51635425	3.071053918	-0.185598	-0.062911
50.185	116.689	0.087	0.975504	0.974246	0.049523	1.92474874	3.190750992	0.011312	0.003334
50.684	116.728	0.091	1.028293	0.972744	0.333404	2.27525804	50.42463853	-0.845519	-0.076453
51.183	116.767	0.095	0.973511	0.971730	0.058878	3.00644364	3.672363567	-0.030679	-0.004361
51.682	116.806	0.099	0.975998	0.975009	0.043891	2.5638745	2.089493469	0.062335	0.059503
52.181	116.845	0.103	0.978713	0.977625	0.046150	1.97769603	2.217980206	0.111147	0.234876
52.680	116.884	0.106	0.979864	0.975784	0.089333	1.93930231	4.329996777	-0.298764	-0.062113
53.179	116.923	0.110	0.967782	0.966199	0.055328	1.64213312	2.566820041	0.113197	0.061411
53.678	116.962	0.114	0.970711	0.969420	0.050083	1.77651072	1.91925597	0.077600	0.107987
54.177	117.001	0.118	0.969250	0.967826	0.052494	1.84686424	1.934634757	0.073349	0.044489
54.676	117.040	0.122	0.973522	0.970151	0.080983	2.15168714	2.693719127	-0.030889	-0.005864
55.175	117.079	0.126	0.976732	0.972722	0.088404	1.84798681	3.7250702	0.024880	0.009024
55.674	117.118	0.130	0.973685	0.971811	0.060350	1.7681512	2.017998681	0.060958	0.138936
56.173	117.157	0.134	0.966137	0.964192	0.061224	1.49226134	1.648817354	0.063834	0.132629
56.672	117.196	0.138	0.973873	0.969988	0.086906	1.6517929	2.375432391	0.073345	0.014882
57.171	117.235	0.142	0.971257	0.968900	0.067655	2.95246076	1.747274962	0.055217	0.061666
57.670	117.274	0.145	0.969361	0.967100	0.066164	2.32723799	1.816303155	0.100212	0.071659
58.169	117.313	0.149	0.965978	0.963790	0.065015	1.6806479	1.570579306	0.045266	0.064105

58.668	117.352	0.153	0.966133	0.960607	0.103191	1.64152282	4.708118015	0.088802	0.033120
59.167	117.391	0.157	0.968394	0.964417	0.087650	2.06425845	2.368267043	0.241998	0.039412
59.666	117.430	0.161	0.961580	0.958581	0.075859	2.6919642	1.627824728	0.118983	0.084002
60.165	117.469	0.165	0.963193	0.958817	0.091680	1.46623291	2.179730753	0.089256	0.021912
60.664	117.508	0.169	0.960160	0.957220	0.075084	3.00095109	1.557890398	0.034465	0.044956
61.163	117.547	0.173	1.012506	0.954051	0.339054	1.63275294	46.07444866	-0.023973	-0.003848
61.662	117.586	0.177	0.959913	0.956663	0.078908	1.77289694	1.827003406	0.070145	0.184278
62.161	117.625	0.181	0.962200	0.955814	0.110659	2.1205025	2.412142587	0.469757	0.052537

Station 8 Boundary Layer Survey   0713s8l
Vref=   26.4378 m/s
Blade Spacing =   152.44 mm

x(mm)	z(mm)	d/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
41.506	91.490	0.006	0.337079	0.328088	-0.077335	17.6603312	30.27351569	-5.425890	-0.188443
42.005	91.523	0.010	0.508208	0.497394	-0.104288	16.2672172	8.979763595	-1.296520	-0.081949
42.504	91.556	0.014	0.587258	0.587254	0.001559	16.3579562	0.529493795	-2.224890	-0.079962
43.003	91.589	0.018	0.663996	0.663486	-0.026037	16.4491354	7.894087363	-2.592030	-0.188105
43.502	91.622	0.022	0.765419	0.765408	0.004168	14.3345585	1.59081013	-2.736120	-0.122670
44.001	91.655	0.026	0.848505	0.848456	0.008872	10.050975	2.969638877	-0.212535	-0.011842
44.500	91.688	0.029	0.908775	0.908234	0.031293	9.057887	49.62247125	-1.646090	-0.091556
44.999	91.721	0.033	0.955310	0.955117	0.019139	5.43202904	15.56771763	-1.235770	-0.200055
45.498	91.754	0.037	0.982389	0.981386	0.044380	3.71556854	9.328289302	-0.701710	-0.078673
45.997	91.787	0.041	0.999599	0.999221	0.027489	2.72958149	3.163808896	0.024243	0.019952
46.496	91.820	0.045	1.001176	1.000253	0.042917	2.64534023	4.286009484	0.009443	0.003067
46.995	91.853	0.049	0.998892	0.997209	0.057989	2.34541455	5.295033651	0.087119	0.018499
47.494	91.886	0.053	1.000166	0.999418	0.038760	3.01889047	2.305528158	0.048719	0.029878
47.993	91.919	0.057	1.001358	0.999270	0.064626	1.79916562	4.14692942	0.177387	0.063088
48.492	91.952	0.061	1.000825	1.000034	0.039768	2.55690704	1.731377463	0.032465	0.029626
48.991	91.985	0.065	0.995752	0.992462	0.080852	2.40561763	3.481254384	-1.001510	-0.111738
49.490	92.018	0.068	1.001017	0.999841	0.048522	1.63485024	1.672100509	-0.001804	-0.003210
49.989	92.050	0.072	0.999974	0.997905	0.064298	1.73008702	2.538014793	0.021798	0.022800
50.488	92.083	0.076	0.992155	0.989628	0.070740	2.34523148	2.388350834	-0.021199	-0.003880
50.987	92.116	0.080	0.995945	0.992356	0.084480	2.0767225	2.691673579	0.182567	0.027160
51.486	92.149	0.084	0.995575	0.992238	0.081467	1.55750667	2.530395115	0.024989	0.009707
51.985	92.182	0.088	0.992707	0.990638	0.064051	2.85604024	1.568063296	0.028007	0.043064
52.484	92.215	0.092	0.994610	0.990324	0.092233	1.84575682	2.213935434	0.865802	0.125047
52.983	92.248	0.096	0.988063	0.984208	0.087220	1.57905382	2.442058852	0.003520	0.001366
53.482	92.281	0.100	0.985316	0.981205	0.089903	1.48431778	2.115752338	0.057414	0.009326
53.981	92.314	0.104	0.985729	0.982211	0.083199	1.96942161	1.889201231	-0.107191	-0.030037
54.480	92.347	0.107	0.987794	0.983690	0.089946	1.53139879	2.173837927	0.023640	0.018010
54.979	92.380	0.111	0.980225	0.977199	0.076981	1.29542427	1.389561239	0.025702	0.083937
55.478	92.413	0.115	0.981054	0.974491	0.113262	2.30885195	2.236873142	0.058178	0.007460
55.977	92.446	0.119	0.974120	0.970467	0.084298	1.49485812	1.419624505	0.014597	0.023707
56.476	92.479	0.123	0.975043	0.971386	0.084347	1.52118996	1.40877047	0.005188	0.012017
56.975	92.512	0.127	0.975611	0.968840	0.114747	1.52955626	2.294535808	0.047831	0.011166
57.474	92.545	0.131	0.972717	0.968522	0.090226	1.49124354	1.411861361	0.051978	0.156974
57.973	92.578	0.135	0.974692	0.968076	0.113374	1.43138751	2.204471348	0.024552	0.006755
58.472	92.611	0.139	0.975130	0.969952	0.100351	2.38888536	1.438692327	-0.004340	-0.002258
58.971	92.644	0.143	0.970085	0.961392	0.129569	2.07137761	2.218578041	-0.036446	-0.004964

Station 5 Boundary Layer Survey   0713s5l
Vref=   26.4301 m/s
Blade Spacing =   152.44 mm

x(mm)	z(mm)	d/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
10.508	5.160	0.010	1.362590	0.896955	1.025728	1.73506003	1.197866	0.029296	0.041943
10.839	4.785	0.014	1.356786	0.898824	1.016356	1.46324003	2.0191545	0.029525	0.026816
11.170	4.410	0.018	1.346208	0.897840	1.003072	1.93541076	1.3632153	0.020142	0.016626
11.501	4.034	0.022	1.335519	0.889902	0.995834	1.48087709	1.8964071	-0.034732	-0.022571
11.832	3.660	0.026	1.334448	0.891045	0.993371	2.52418701	1.3642761	0.035215	0.059971
12.163	3.285	0.030	1.324040	0.887874	0.982225	1.76669179	1.6824332	0.054083	0.031662
12.494	2.910	0.033	1.316170	0.881854	0.977053	1.39609898	1.967276	-0.014126	-0.009327
12.825	2.535	0.037	1.303828	0.874590	0.966985	1.49798019	1.9509301	-0.013047	-0.008860
13.156	2.160	0.041	1.292746	0.868881	0.957200	1.46496737	1.9482281	0.019888	0.015557
13.487	1.785	0.045	1.283139	0.868120	0.944889	1.60140371	1.9548611	-0.158090	-0.094663
13.818	1.410	0.049	1.283041	0.869490	0.943496	1.60175656	1.9065889	0.073111	0.032139
14.149	1.035	0.053	1.281429	0.873118	0.937938	1.78427806	1.6660221	0.019130	0.013021
14.480	0.660	0.057	1.271993	0.865313	0.932308	1.55150559	1.8251425	0.015242	0.017554
14.811	0.285	0.061	1.262992	0.862032	0.923069	1.45126587	2.2243465	0.028759	0.069439
15.142	-0.090	0.065	1.260903	0.863080	0.919221	1.58956961	1.6655915	-0.221674	-0.109672
15.473	-0.465	0.069	1.249780	0.858211	0.908525	1.41850247	1.8054386	0.013707	0.013188
15.804	-0.840	0.072	1.250275	0.859660	0.907840	1.59948341	1.6238805	-0.026932	-0.011141
16.135	-1.215	0.076	1.241350	0.859206	0.895944	1.61390674	1.6523007	0.068485	0.034781
16.466	-1.590	0.080	1.230461	0.853349	0.886470	1.39348482	1.5355351	-0.009857	-0.014743
16.797	-1.965	0.084	1.227438	0.852153	0.883425	1.75792432	1.6498749	-0.047136	-0.028311
17.128	-2.340	0.088	1.220222	0.847829	0.877568	1.41933324	1.8351168	0.019319	0.013027
17.459	-2.715	0.092	1.219420	0.850118	0.874231	1.56671621	1.5213709	0.027154	0.092759
17.790	-3.090	0.096	1.217328	0.851272	0.870190	1.54130429	1.5715974	-0.103961	-0.059509
18.121	-3.465	0.100	1.208395	0.846720	0.862138	1.5342655	1.9700376	0.042710	0.041715
18.452	-3.840	0.104	1.196870	0.840678	0.851915	1.38499156	1.8192561	0.022331	0.038457
18.783	-4.215	0.108	1.206938	0.851718	0.855142	1.68057649	1.5876061	0.034473	0.076948
19.114	-4.590	0.111	1.201895	0.849713	0.850023	1.60683281	1.5845879	0.012658	0.049284
19.445	-4.965	0.115	1.196008	0.846365	0.845044	1.74967253	1.6183778	0.014662	0.027841
19.776	-5.340	0.119	1.197139	0.851128	0.841855	1.75839655	1.6296957	-0.009019	-0.004269
20.107	-5.715	0.123	1.193283	0.851915	0.835559	1.74943312	1.7316703	0.041545	0.021723
20.438	-6.090	0.127	1.184577	0.843413	0.831794	1.54287297	1.6479337	0.023954	0.031660
20.769	-6.465	0.131	1.183510	0.846016	0.827617	1.45197577	1.7137217	0.021370	0.089934
21.100	-6.840	0.135	1.185194	0.850776	0.825146	1.62789219	1.6261241	0.068936	0.037362
21.431	-7.215	0.139	1.178607	0.844817	0.821824	1.73224674	1.7641857	-0.099673	-0.045277
21.762	-7.590	0.143	1.162542	0.837288	0.806508	1.69312988	1.9227808	0.014820	0.019896
22.093	-7.965	0.147	1.173999	0.848680	0.811181	1.87892683	1.6490097	0.029497	0.012326

Station 7 Boundary Layer Survey   0804s7l

Vref=   26.0929 m/s

Blade Spacing =   152.44 mm

x(mm)	z(mm)	d/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
40.992	60.810	0.005	1.117442	0.748395	-0.829808	21.2382571	0.810257	-0.552582	-0.014955
41.190	60.780	0.006	0.963423	0.951186	0.153067	12.5617422	3.5458348	0.398590	0.054672
41.388	60.750	0.008	1.092014	1.077236	0.179031	8.61287541	2.3266033	0.118661	0.022338
41.586	60.720	0.009	1.202036	1.184820	0.202718	5.1193838	2.1260048	0.181967	0.049872
41.784	60.690	0.011	1.246358	1.222777	0.241300	3.96435333	2.7687939	-0.447566	-0.045353
41.982	60.660	0.012	1.268517	1.244143	0.247463	3.81633414	2.3013708	-1.247130	-0.114291
42.180	60.630	0.014	1.315185	1.294145	0.234309	2.41437013	2.0388159	0.020403	0.019184
42.378	60.600	0.015	1.337870	1.316067	0.240544	2.26293742	1.7569352	-0.032217	-0.036977
42.576	60.570	0.017	1.326867	1.302140	0.254967	2.60891494	1.8019364	0.252995	0.038685
42.774	60.540	0.018	1.331343	1.308931	0.243243	2.18122843	1.8280402	0.061204	0.136951
42.972	60.510	0.020	1.315726	1.293513	0.240749	2.02053166	1.6348377	0.071757	0.081887
43.170	60.480	0.021	1.312909	1.290221	0.243023	2.20256158	1.6326444	0.046881	0.143474
43.368	60.450	0.023	1.307206	1.280946	0.260694	2.45664978	1.531535	-0.388907	-0.057577
43.566	60.420	0.024	1.302243	1.273320	0.272945	2.33507708	1.5679306	-0.436791	-0.042873
43.764	60.390	0.026	1.303554	1.279520	0.249156	2.53623991	1.5216697	0.010437	0.005813
43.962	60.360	0.027	1.308436	1.284644	0.248382	1.77995201	1.4909261	0.066482	0.073255
44.160	60.330	0.029	1.312127	1.282253	0.278399	1.71428254	2.4550007	0.075175	0.037726
44.358	60.300	0.030	1.303669	1.274699	0.273317	1.68604469	1.7961727	0.137938	0.050867
44.556	60.270	0.032	1.288458	1.260853	0.265280	2.15820134	1.5487116	-0.022412	-0.003730
44.754	60.240	0.033	1.295812	1.266682	0.273206	1.75217552	1.7840116	-0.511372	-0.198468

Station 7.25 Boundary Layer Survey 0804s725

Vref=   27.2676 m/s

Blade Spacing =   152.44 mm

x(mm)	z(mm)	d/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
41.964	68.532	0.005	1.011798	0.823479	-0.587896	26.9761887	34.115577	-5.694250	-0.069610
42.164	68.522	0.007	0.844574	0.843140	0.049228	13.7484069	5.3209092	-2.100390	-0.182685
42.364	68.512	0.008	0.950450	0.948243	0.064764	11.2489072	3.7036224	-0.723698	-0.073991
42.564	68.502	0.010	1.027245	1.023291	0.090061	8.6308795	4.1691343	-0.967941	-0.069925
42.764	68.492	0.011	1.093492	1.087723	0.112164	6.07710929	4.0272463	0.273983	0.018657
42.964	68.482	0.013	1.145268	1.140412	0.105328	3.94510728	2.9665086	-0.762427	-0.151771
43.164	68.472	0.014	1.162427	1.155188	0.129520	4.2977955	3.5726931	0.170715	0.014374
43.364	68.462	0.016	1.191850	1.183481	0.140994	3.19712792	3.1612481	-0.540657	-0.052054
43.564	68.452	0.017	1.204026	1.197861	0.121694	2.60763602	2.3700907	-0.131913	-0.118989
43.764	68.442	0.019	1.198488	1.191935	0.125165	3.22833143	2.3047388	0.144734	0.054284
43.964	68.432	0.020	1.178846	1.169256	0.150079	2.75631013	2.6662558	0.038353	0.003294
44.164	68.422	0.022	1.198389	1.191264	0.130484	2.18445585	2.0917525	-0.069628	-0.070444
44.364	68.412	0.024	1.196966	1.187120	0.153240	2.27435479	3.2210074	0.092080	0.031810
44.564	68.402	0.026	1.194267	1.181872	0.171615	2.15831014	2.8819374	-0.114094	-0.027628
44.764	68.392	0.028	1.196251	1.186027	0.156058	2.37864759	2.0397839	-0.160997	-0.022795
44.964	68.382	0.029	1.193468	1.185367	0.138823	2.66325778	1.6892399	-0.012050	-0.007166
45.164	68.372	0.031	1.191077	1.183052	0.138015	2.5258169	1.5723092	-0.024541	-0.018701

Station 7.5 Boundary Layer Survey 0804s75l

Vref= 27.3180 m/s

Blade Spacing = 152.44 mm

x(mm)	z(mm)	d/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
42.128	76.203	0.005	0.856662	0.725364	-0.455758	30.4104601	35.823089	-16.269900	-0.193238
42.328	76.204	0.006	0.603631	0.603620	0.003190	18.2713457	26.31038	-4.423440	-0.265742
42.528	76.205	0.008	0.722161	0.722059	0.012042	18.5096864	37.396645	-3.074500	-0.140473
42.728	76.206	0.009	0.804503	0.777568	0.206428	17.7112084	56.191245	-10.035200	-0.164317
42.928	76.207	0.011	0.831953	0.830628	0.046930	17.5414546	16.185251	-4.472360	-0.175990
43.128	76.208	0.012	0.928725	0.925855	0.072961	13.1280648	21.11394	-3.568850	-0.131463
43.328	76.209	0.014	0.971217	0.970459	0.038390	11.6986896	6.6475732	-1.527490	-0.173278
43.528	76.210	0.016	1.014964	1.012069	0.076610	6.80087067	8.5714251	-0.731403	-0.035487
43.728	76.211	0.017	1.057643	1.056446	0.050283	4.08116826	3.4616603	-1.312510	-0.246320
43.928	76.212	0.019	1.083095	1.079149	0.092404	3.44355456	5.5860807	-2.069090	-0.149781
44.128	76.213	0.020	1.098378	1.095011	0.085927	3.42294843	5.006928	-0.662777	-0.056929
44.328	76.214	0.022	1.105689	1.104016	0.060773	2.98194632	2.4793824	-0.073212	-0.026247
44.528	76.215	0.023	1.116970	1.114877	0.068335	2.39156647	2.6111891	-0.310862	-0.142151
44.728	76.216	0.025	1.127432	1.123765	0.090870	2.55026003	3.2797621	-0.023514	-0.005221
44.928	76.217	0.026	1.124940	1.122377	0.075861	2.34918035	2.4358461	-0.188775	-0.180097
45.128	76.218	0.028	1.124716	1.119917	0.103772	2.2417832	3.3771741	-0.022100	-0.004895
45.328	76.219	0.030	1.123278	1.118457	0.103952	2.26866638	3.1930295	-0.103734	-0.024948
45.528	76.220	0.031	1.123351	1.119903	0.087938	2.06256947	2.653265	-0.062549	-0.041062
45.728	76.221	0.033	1.098433	1.095358	0.082131	3.19443743	1.8731169	0.046437	0.023029

94

Station 7.75 Boundary Layer Survey 0813s775

Vref= 26.4920 m/s

Blade Spacing = 152.44 mm

x(mm)	z(mm)	d/c	W/Vref	U/Vref	V/Vref	Tu	Tv	Re stress	Corr.
41.554	83.836	0.003	0.324749	0.287224	-0.151539	16.9156594	43.114197	-6.857860	-0.185726
41.754	83.843	0.004	0.401453	0.400947	-0.020128	14.9548189	7.1278145	-3.143510	-0.207933
41.954	83.850	0.006	0.460845	0.460784	-0.007544	17.215043	3.4118713	-3.239010	-0.157483
42.154	83.857	0.007	0.519142	0.519093	-0.007239	15.7342664	3.5846954	-2.955000	-0.151897
42.354	83.864	0.009	0.564110	0.564099	0.003633	17.1355102	1.8018785	-5.403510	-0.221781
42.554	83.871	0.010	0.615839	0.615744	0.010824	18.3953016	5.8175535	-1.486990	-0.053356
42.754	83.878	0.012	0.658882	0.658637	0.017876	19.294429	11.431629	-2.833090	-0.094319
42.954	83.885	0.013	0.690374	0.690095	0.019608	17.2354707	14.306346	-0.813695	-0.030318
43.154	83.892	0.015	0.791156	0.791129	-0.006305	14.4901678	2.9814548	-2.772350	-0.198730
43.354	83.899	0.017	0.811830	0.810996	0.036799	16.3051511	1376.317	-2.023620	-0.069140
43.554	83.906	0.018	0.876812	0.876778	0.007837	12.5379239	125.85061	-2.435120	-0.236424
43.754	83.913	0.020	0.926200	0.926132	0.011297	10.4818741	9.8704089	-0.892270	-0.113390
43.954	83.920	0.021	0.941609	0.941458	0.016867	9.30613146	8.1410477	-0.883259	-0.128438
44.154	83.927	0.023	1.003205	1.003046	0.017712	6.34067633	6.3879499	-0.855515	-0.166160
44.354	83.934	0.024	1.015352	1.014491	0.041882	4.2102195	8.378719	-0.823340	-0.097321
44.554	83.941	0.026	1.041175	1.039672	0.055882	3.76328123	6.3345346	-0.842885	-0.088789
44.754	83.948	0.027	1.035739	1.035022	0.038583	3.48059232	3.7529479	-0.502911	-0.169419
44.954	83.955	0.029	1.053125	1.052386	0.039471	3.72397178	3.3130198	-0.183054	-0.053568
45.154	83.962	0.030	1.056878	1.054330	0.073343	2.53238374	6.0780925	-0.294927	-0.036548
45.354	83.969	0.032	1.058233	1.054715	0.086222	2.68203383	6.6968016	-0.208854	-0.034764

APPENDIX D: FIVE HOLE PROBE EQUATIONS

The five-hole probe data were reduced using the following equations:

Mach No. sensitivity: $\quad \beta = \dfrac{p_1 - p_{23}}{p_1} \quad$ where $\quad p_{23} = \dfrac{p_2 + p_3}{2}$

Pitch Sensitivity: $\quad \gamma = \dfrac{p_4 - p_5}{p_1 - p_{23}}$

Dimensionless Velocity Polynomial:

$$\chi = \left\{ C_{11} + C_{12}\beta + C_{13}\beta^2 + C_{14}\beta^3 + C_{15}\beta^4 \right\}$$
$$+ \left\{ C_{21} + C_{22}\beta + C_{23}\beta^2 + C_{24}\beta^3 + C_{25}\beta^4 \right\}\gamma$$
$$+ \left\{ C_{31} + C_{32}\beta + C_{33}\beta^2 + C_{34}\beta^3 + C_{35}\beta^4 \right\}\gamma^2$$

Dimensionless Velocity: $\quad \chi = \dfrac{V}{V_t} \quad$ where $\quad V_t = \sqrt{2 C_p T_t}$

AVR: $\quad \dfrac{\displaystyle\int_0^s c_{z2}\,dx}{\displaystyle\int_0^s c_{z1}\,dx}$

Loss Coefficient: $\quad \omega = \dfrac{\overline{C_{pt1}} - \overline{C_{pt2}}}{\overline{C_{pt1}} - \overline{C_{ps1}}} \quad$ where $\quad \overline{C_{pt1}} = \dfrac{P_t}{P_p}, \quad \overline{C_{ps1}} = \dfrac{P_s}{P_p} \quad$ and

$$\overline{C_{pt2}} = \dfrac{1}{AVR\, c_{z1} S} \int_0^s \dfrac{P_{t2}}{P_{plenum}} c_{z2}\,dx$$

	C_{i1}	C_{i2}	C_{i3}	C_{i4}	C_{i5}
C_{1j}	.015926	4.932133	-153.66876	3137.9614	-24299.005
C_{2j}	-.003563	.699505	-62.977261	2068.3721	-20872.148
C_{3j}	.080098	-24.844173	1980.4954	-57799.703	541835.5

Dimensionless Velocity Coefficients

97

LIST OF REFERENCES

1. Gelder, T.F., Schmidt, J.F., Suder, K.L., and Hathaway, M.D., "Design and Perfromance of Controlled-Diffusion Stator Compared With Original Double-Circular-Arc Stator", NASA Technical Paper 2852, March, 1989.

2. Sanger, N.L., "The Use of Optimization Techniques to Design Controlled-Diffusion Compressor Blading", *ASME Journal Of Engineering For Power*, Vol. 105, 1983, pp.256-264.

3. Hansen, D.J., "Investigation of Second Generation Controlled-Diffusion Compressor Blades in Cascade", Master's Thesis, Naval Postgraduate School, Monterey, California, September, 1995.

4. Schnorenberg, D.G., "Investigation of the Effect of Reynolds Number on Laminar Separation Bubbles on Controlled-Diffusion Compressor Blades in Cascade", Master's Thesis, Naval Postgraduate School, Monterey, California, June, 1996.

5. Grove, D.V., "Experimental and Numerical Investigation of Second Generation, Controlled-Diffusion, Compressor Blades in Cascade", Master's Thesis, Naval Postgraduate School, Monterey, California, June, 1997.

6. Dober, D.M., "Three-Dimensional Fiber-Optic LDV Measurements in the Endwall Region of a Linear Cascade of Controlled-Diffusion Stator Blades", Master's Thesis, Naval Postgraduate School, Monterey, California, March, 1993.

7. Webber, M.A., "Determining the Effect of Endwall Boundary Layer Suction in a Large Subsonic Compressor Cascade", Master's Thesis, Naval Postgraduate School, Monterey, California, March, 1993.

8. Grossman, B.L., "Testing and Analysis of a Transonic Axial Compressor", Master's Thesis, Naval Postgraduate School, Monterey, California, September, 1997.

9. Nicholls, J.L., "HP-VEE Program: TEST_SCANNERS_PRESSURES", TPL Technical Note 99-02, Naval Postgraduate School, Monterey, California, September, 1999.

INITIAL DISTRIBUTION LIST

No. of Copies

1. Defense Technical Information Center 2
    8725 John J. Kingman Rd., Ste 0944
    Ft. Belvoir, VA 22060-6218

2. Dudley Knox Library 2
    Naval Postgraduate School
    411 Dyer Rd.
    Monterey, CA 93943-5101

3. Department Chairman, Code AA 1
    Department of Aeronautics and Astronautics
    Naval Postgraduate School
    699 Dyer Road, Rm. 137
    Monterey, CA 93943-5107

4. Dr. Garth V. Hobson, Code AA/HG 4
    Department of Aeronautics and Astronautics
    Naval Postgraduate School
    699 Dyer Road, Rm. 137
    Monterey, CA 93943-5107

5. Dr. Raymond P. Shreeve, Code AA/SF 1
    Department of Aeronautics and Astronautics
    Naval Postgraduate School
    699 Dyer Road, Rm. 137
    Monterey, CA 93943-5107

6. Naval Air Warfare Center 1
    AIR-4.4.T (Attn: Mr. C. Gorton)
    Propulsion and Power Engineering, Building 106
    Patuxent River, MD 20670-5304

7. Naval Air Warfare Center 1
    AIR-4.4.7 (Attn: Mr. J. Zidzik)
    Propulsion and Power Engineering, Building 106
    Patuxent River, MD 20670-5304

8. Naval Warfare Center Aircraft Division 1
    AIR-4.4.7.1 (Attn: D. Hartsig)
    Propulsion and Power Engineering, Building 106
    Patuxent River, MD 20670-5304